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SOME ACCOUNT

OF A

BOTANICAL TOUR

IN THE

MOUNTAINS OF AUVERGNE AND SWITZERLAND.

BY

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"Ye wild flowers the gardens eclipse you, 'tis true,
Yet, wildlings of Nature, I dote upon you.

* * * * *
I love you for lulling me back into dreams
Of the blue Highland mountains and echoing streams."

CAMPBELL



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ACCOUNT

OF A

BOTANICAL TOUR.

"Not a mote in the beam, not an herb on the mountain, not a pebble on the shore, not a seed far blown into the wilderness, but contributes to the love that seeks in all the true principle of life—the beautiful—the joyous—the immortal."—Sir F. BULWER LYTTON.

AFTER having completed all arrangements in the shape of necessities, I left Edinburgh on Friday afternoon the 27th July, and reached London by rail next morning in ample time for the Calais steamer which was to sail from London Bridge at 9 A.M. I accordingly went on board a little before the time of starting. It was not long ere we got under weigh, steaming it for some time very leisurely down the great Father Thames. In no sense, however, could it be said to be tedious, for we sailed through a continuous forest of masts, and saw on every side indications of the colossal character, the maritime greatness, the wealth and commerce of this great outpost of the world. Time by degrees brought us into wider space; we now began to descry on the right the coast of Kent, and got a peep of the chalk cliffs overlooking in proud defiance that sea which had taken away by the successive inroads of ages, and led captive to other stations the abraded materials and recomposed them elsewhere. Before us loomed in the distance the same chalk formation on the French coast. The transit upon the whole was exceedingly delightful, for every now and then some craft shot past us, and the eye was actively

employed in detecting new objects, which last is one of those things that relieves the monotony of steamboat navigation and seafaring in general. By the bow of the vessel being determinately set in one direction, the point of land therefore to be reached could not be mistaken, and though as yet indistinctly seen, yet the spires of the churches and other prominent objects of the old city Calais were continually becoming more and more apparent as we approached. At length, after nine or ten hours' sail, we found ourselves entering the long, winding, and well defended port. A landing was soon effected, and the disagreeable necessity of having our traps searched, and producing our passports, being ended, we escaped into the city to go wherever our inclination might prompt. I immediately made inquiry for the "Hôtel Dessin," where, before leaving Scotland, my companion in travel, an English gentleman, and I had appointed to meet before proceeding on our projected expedition.

According to what had been previously settled between us, I expected to find my friend there waiting for me; but this was quite otherwise. An untoward accident to the engine of the steamer in which he had sailed from Dover prevented his arriving first. I necessarily waited there, and to pass the time somewhat profitably, I took a saunter through the place. Calais, certainly, is in a considerably dilapidated and decayed condition, and not laid out or disposed in its streets or buildings with that order and regularity one might expect. On returning to the hotel, I was content in the circumstances to remain for the night, and had indeed taken two apartments for that purpose; but after waiting some time, I had the satisfaction of seeing the garçon enter and introduce my friend with a smiling face. This solved all difficulties, and dissipated doubts about the future. We dined in French fashion, and made arrangements for starting at one o'clock next morning for Paris. While the darkness lasted, we were content to look at one another, and to chat away the short hours in one sense but long in another, in the way we best could. For my part I have no pleasant recollections at all of the affair, as it was now the second night I had passed without sleep. The morning, however, faithfully appeared at the appointed

time. We now began to look out upon what to me at least was a strange region. For many miles we steamed away through gardens, well cultivated fields, and passed an endless succession of windmills. It was by this time about eight or nine o'clock in the morning, and it was becoming evident, from the altered state of things, that we were drawing near the outskirts of a great city. I observed just at the time to which I allude, we were passing through several cuttings of the Lower Tertiary, which had a rusty-looking colour, and were composed of gritty and rounded materials. Shortly after these were seen we gave up our tickets, and by that we knew that the great capital was at hand. We slackened speed, therefore, and in a few minutes reached the terminus. It was Sunday, but no symptoms of a day of rest anywhere here appeared; all was bustle, stir, and activity. Having hired a porter to carry our luggage, we directed him to proceed to the Hôtel du Louvre in the Rue de Rivoli. This is a great and fashionable establishment right in front of the Palace of the Tuileries. From the windows of our apartments we could see Zouaves and French soldiers in great profusion, and could hear the rather pleasing jingle of the bells of the horses, whether draught or in carriages, that every now and then shot past, and was quite in keeping with the gaiety and character of the place.

We spent the Sunday at the hotel, and set off at a somewhat early hour next morning for Clermont-Ferrand. After getting quit of the suburban districts, we began to take a survey of the country with a botanical eye, and found it to be promising. Railway travelling, however, is not very favourable for making accurate diagnoses of what you may see; and should another point out anything to you for inquiry, before you can see where it is, it generally happens that it has faded on the view by your being hurried past it. This species of tantalisation was very often experienced as we proceeded. The country through which we travelled was highly cultivated, and thickly studded with poplars and acacias. Vines and acacias, indeed, were exceedingly abundant, for they had sowed themselves, and as stray plants were covering the railway banks as common weeds. Frequently you could see in ponds and sheets of water attached to garden grounds, as also in the ditches on the sides of the

railway, the *Typha latifolia*, the *Potamogeton natans*, and the *Nuphar lutea* in great force, and on the railway banks, *Eryngium campestre*.

We reached Clermont-Ferrand in the dusk of the same day, and saw, somewhat indistinctly through the evening cloud, what we took for the cone of the Puy de Dôme. We halted for the night at the Hôtel de la Paix, and before retiring to rest projected our future plans in this interesting volcanic district of Auvergne. The Limagne d'Auvergne is so remarkable for its fertility that it is called the "Garden of France"—a quality attributable to the detritus of the volcanic rocks which enters into the composition of the soil. The proprietor of conveyances was helpful to us, and recommended us to visit those places which most travellers admire. He said that if we were determined to make the best of our visit and to enjoy the full advantage and interest attached to the locality, we should not run over it too quickly. Accordingly, we agreed to make the ascent of the craters of the Puy de Pariou, the Nid de la Poule, and the Puy de Dôme. This was to be our first day's work. Mont Dore which lay much farther off, would itself occupy the next two days, and to make the most of the time, we were to hire a vehicle thither and back. As the seat of our explorations lay a considerable way out of the town, and we expected climbing enough on the hills, we engaged a *voiture* to set us down where the road began to be steep. Before sending the *cocher* away, we directed him to meet us in the afternoon near the *chalet* at the foot of Puy de Dôme. He found for us a guide to the several heights already named. Before leaving the road and taking to the hills, I observed growing on a kind of turf or earthen enclosure some fine specimens of *Asplenium Trichomanes*, *Sedum album*, and *Euphorbia Cyparissias*. The sight of these plants and some others which will be detailed in the sequel, offered a pretty fair prognostic of what might be expected on the heights. On treading the slope and beginning the ascent of the Puy* de Pariou, it soon became manifest that we would replenish our vasculums with varieties we had not

* *Puy* or *Pic* contains the same elements as *peak*, *pike*, *beak*, *point*, and denotes a *pointed* volcanic hill.

been privileged before either to see or handle. In short, we might now be said to be walking over a continuous garden of glowing violets of all hues, and that

“The soft downy bank was damasked with flowers,”

lovely in radiance to correspond with the sunny skies of these more southern lands. Martagon lilies were as common as daisies with us, and as if a shower of gold had fallen on “the dedal earth,” we walked for a long time over beds of *Genista segetatis*. All these, and many more floral gifts, presented themselves to the eye, and, at the same time, the ears were greeted with shrill sounds that proceeded from the crickets clad in emerald coats that were rejoicing in the sunshine and responding to each other, by rubbing a little membrane with their wings, drumming it away in fine style, and springing from place to place in joyous mood. The lizards also were as busy as the crickets, but less noisy in their movements. They concealed themselves among the dense vegetable covering which overspread the soil; and every now and then, as we moved along, the foot was planted on the tail of one less fortunate than the rest. It writhed and left the posterior member behind it, which, though separated from the body, so far from showing any symptoms of death on that account, twined and twisted along as if it had formed part of the great whole, and presented some of that tenacity of life, or that kind of generalisation for which the lower grades of animals are remarkably distinguished.

On nearing the summit of Pariou we gathered in abundance specimens of the magnificent *Gentiana lutea*—the giant form of the tribe. It was in every stage of advancement, from mere leaves to flower, and in seed in other instances. When the actual summit of the cone was reached, what had from the plains appeared to be a solid cone, now wore quite a different aspect. All one’s previously conceived notions of what a crater might be had to be discarded. Instead of everything being scorched and blasted by the effect of fire, and instead of barrenness and desolation being the genius of the place, or a phlegmæan field, all, on the other hand, was pleasing green. Though it bears the marks of being the newest cone of the system, yet time enough has elapsed to clothe it with grass to the bottom,

and cattle may now be seen quietly grazing about the orifice, which not so very long since belched forth its cataracts of fire, discharged those furious explosions, whose baleful shadows darkened all the surrounding region, and suffocated with their pestilential breath all that then lived. But as the law is that the earth waxes old and is renewed for ever, therefore the face of nature here, as elsewhere, has been regenerated. The depth of the cone is 300 feet, and its circumference 3000; and the tracks made by the cattle on the shelving sides give it the appearance of the seats of an amphitheatre. We gathered within the crater numerous specimens of *Orchis chlorantha*, many of which were dried to preserve the memory of so strange a station for the plant. We visited also on the line of march the Nid de la Poule, or Hen's Nest, another crater of this many-topped region. It was not so perfect as the Puy de Pariou. On descending the flanks of Pariou in another direction, we gathered some good plants, such as *Aquilegia alpina*, *Genista prostrata*, *Silene nutans*, *Galium boreale* and *pusillum*, which last put us in mind of gatherings on our own native highland mountains—also, *Genista pilosa*, *Prunella grandiflora*, &c., &c., which will appear in the lists in the proper place. As these smaller elevations had been so productive, and the highest point in the chain, or the Puy de Dôme, was still to be ascended, we naturally expected a richer harvest on that point. In this, however, we were disappointed. Its height above the sea is 4842 feet, and about 1600 feet above its base. It consists entirely of that variety of trachyte, which, from a supposed peculiarity of mineral character, has been named Domite. Dôme, the name of the puy or peak, is derived from *Dumum*, from the woods with which it was formerly clothed, the remains of which still cover its eastern slope. At the commencement of the ascent, which was rather stiff in some places, our way lay up gullies of crumbling scoriæ. In these we fell in with a few specimens of *Geranium sylvaticum*, *Saxifraga hypnoides*, and *Alchemilla alpina*, which one would have supposed augured better plants farther up; but no, very few of great interest were seen as we climbed upwards, and they differed very little from those we had seen on Pariou. One thing, however, was quite certain: they were scantier in every respect. The

less productive character of some parts of Dôme is due to the different consistence of its substance, which resists decomposition and atmospheric erosion much more in some parts than in others. We drew near the summit at length, and experienced considerable difficulty in keeping off both bell-wethers and animals in human form, which seem to try all their arts to squeeze some dole from the many persons who continually make the ascent.

There are some peculiar features in continental flora, which we may notice here in passing. They are in general far more numerous in point of species and varieties—their tints are more brilliant (as has already been observed), and those of the plains, or of inferior elevation, are more apt to stray or trespass in a sense on what might be called the lands or territory of another.

On the highest point of the Puy de Dôme we gathered that most common of all common plants, *Veronica Chamædrys*, which every one knows has its haunt by the hedge-row, in the green lane, or the quiet wood in the plains.

From the summit, which has the form of an irregular or truncated cone, and during the descent, we enjoyed a delightful prospect of the surrounding country. In the distance lay Clermont, of a somewhat grey, dingy, or ashen hue, from being constructed of the lava of the district, and nearer to the base of the giant Dôme rose the smiling vineyards in terraces to the summits of the little hills, which might be said to be as numerous as molehills in spring, when the labouring moles are more than usually active in making excavations, and in rearing mounds of the materials removed from the subterranean galleries. The *tout ensemble* of the many elevations, together with their amazing fertility, pictured in a very lively manner to the imagination the description, as drawn by the pen of inspiration, of the vine-clad hills of Palestine. One naturally descends a hill more rapidly than he ascends. We tripped it featly for a considerable way down, much to the astonishment of some Frenchmen, who were puffing and blowing in making the ascent. * With the exertion which we had by this time undergone, we were in a profuse perspiration, and began to feel the keen demands of hunger and thirst. Happily a *chalet* was not far off, into which we entered with right

good will; but took the precaution to ask the price of a bottle of the *vin ordinaire*, which proved to be so exorbitantly dear that we ordered none, resting satisfied with *limonade gazeuse* to quench our thirst, for which, as might be expected, we paid a smart price. This haunt of impostors was not very far from the place where we had appointed the *cocher* to meet us on our return homewards. We therefore rested for some time on the green sward, viewing with satisfaction the surrounding country, and surveying those who passed us and were about to make the ascent of the Puy de Dôme.

Tired at length, we rose and went afoot and gathered a few more plants of the fields and plains, such as *Galeopsis Ladanum*, *Stachys arvensis*, *Allium Victorialis*, &c. We met in with the vehicle after some time, and drove along for a short distance until we came to a part of the road that led into the valley of Fontanat. The *cocher* here introduced us to a courteous priest, whom, by the way, we had seen on the hills. He kindly undertook to act as our guide through this enchanting spot. The road, or rather lane, we took skirted one side of the wooded valley, which was traversed by a stream which could be seen at every opening among the trees stealthily meandering along. Before getting quite into the footpath which was formed on one side of the valley, I should have mentioned that we surprised a party in a quiet nook. It was a French peasant's wedding on the green. We were amused at the rustic simplicity of the affair. They were trying to keep each other in merriment by tripping it with their *sabots* to the sound of a hurdy-gurdy. After we had entered the valley we gathered fine specimens of *Cystopteris fragilis* in the old walls, also, in the same places, abundance of *Ceterach officinarum*, and in the crevices of the volcanic rocks *Asplenium septentrionale*, the fronds of which were remarkably long and beautiful. *Dianthus prolifer* was in great profusion. We got also, among others, *Cuscuta Epilinum*. On emerging from the valley a small sum was exacted as the fare for the way out. We saw and tested the hot springs of Royat, where we joined our vehicle again. Turning aside a little, we inspected the incrusting springs of the neighbourhood, and reached our inn in the evening, after a pretty good

day's work, only to begin the next with something more serious.

Plants gathered on and around the Puy de Pariou.

Genista segetalis	Stachys annua
prostrata	Dianthus Carthusianorum
Campanula glomerata	Anthyllis Vulneraria
Hypericum humifusum	Arenaria ciliata
Asplenium Trichomanes	Phyteuma hemispherica
Cerastium arvense	Prunella grandiflora
Habenaria bifolia	Linaria striata
Raphanistrum arvense	Helianthemum vulgare (var.
Thymus Acinos	alpina).
Jasione perennis	Sedum album
Orchis chlorantha	Euphorbia Cyparissias
Geranium columbinum	Campanula persicifolia
Pedicularis ascendens	patula
Dianthus cæsius	glomerata
Genista pilosa	rhomboidalis
unifusa	Aira flexuosa
Speularia speculum	Sedum reflexum
Teucrium montanum	Gentiana lutea
Melampyrum pratense	Erigeron acris
Viola sudetica	Agrostis stolonifera
Silene inflata (var. alpina).	Ranunculus acris
Galium sylvaticum	Teucrium Chamædrys
Filago montana	Orehis maculata
Galium boreale	Globularia nudicaulis
pusillum	Aira cæspitosa
Eruca sativa	Scleranthus annuus
Lilium Martagon	Melissa Calamintha
Aquilegia vulgaris	Silene nutans
alpina	Avena elatior
Galium ercetum	Verbena floeosa

Plants gathered on and around the Puy de Dôme, and through the Valley of Fontanat.

Origanum vulgare	Veronica Chamædrys
Salvia pratensis	Sempervivum arachnoideum
Eryngium campestre	Thesium alpinum
Thlaspi Bursa-pastoris	Verbena officinalis
Aira caryophyllæa	Melissa Calamintha
Verbascum floeosum	Poterium Sanguisorba
Geranium sylvaticum	Agrostis pumila
Lythrum Salicaria	Asperula cynanchica
Erica Tetralix	Hypericum perforatum
Alchemilla alpina	Chelidonium majus
Raphanistrum arvense	Silene nutans
Saxifraga hypnoides	Salvia pratensis

Thymus Acinos
 Dianthus prolifer
 Armeria
 Verbascum nigrum
 Thapsus
 Agrostis vulgaris
 Solanum nigrum
 Briza maxima
 Barkhausia fœtida
 Verbascum floccosum
 Illecebrum verticillatum
 Ceterach officinarum

Cystopteris fragilis
 Asplenium septentrionale
 Echium vulgare
 Cuscuta Epilinum
 Euphorbia hibernica
 Lamium incisum
 Galeopsis Ladanum
 Artemisia Absinthium
 Allium Victorialis
 Stachys arvensis
 Lamium maculatum

Our next tour was to Mont Dore, distant from Clermont thirty-three English miles. This object could not be attained in one day. Over night, therefore, we engaged a vehicle for two days, and set off at an early hour next morning. Our route, which was a continual ascent, lay through a richly cultivated and fertile country, clothed with fields of rye and other cereal grasses, and the highway was shaded with an almost endless succession of chestnuts, all laden with rich fruit. The other parts of the country seen in the distance were thickly wooded and highly picturesque. In these thickets, as the *cocher* informed us, wolves were the denizens. Heaths also were passed fragrant with *Gymnadenia conopsea*, and other plants were seen which we did not stop to gather. Where openings had been made, we saw scorïæ and volcanic ashes; and elsewhere the native igneous rock cropped out to view. Half way we halted for two hours to bait, after which we resumed our journey with more spirit on finding our animal nature restored. We drove on for several miles, till we came to the great winding slope that leads direct to the baths and town of Mont Dore. Here the *cocher*, who was rather a qucer fellow,

“ Seemed in running to devour the way ; ”

SHAKESPEARE—

that is to say, he drove so fast past a party of burly Frenchmen, that they had to run for their lives, and were seemingly in great consternation at the determined spirit of our driver.

A few minutes more, and we drew up at the Hôtel Chaboury. As we had to make the most of the time, and it might be said to be yet high day or 2½ P.M., we hired a

guide, of whom, in a place like this, there are always many attached to the hotels. He agreed to lead us to the summit of the Pic de Sancy for five francs. After taking apartments and stabling the traps, we girded ourselves with strength for the *stey braes*, as well as armed ourselves with spuds, shouldered the great vasculum, and, this done, were immediately in motion. The first capture was *Ranunculus aconitifolius*, which we found by a little stream near the town. Though this was the first time we had made its acquaintance, the sequel will show that it was not the last. Then we came to fields of *Trifolium badium* in our way up the valley. Shortly after we passed a party of French ladies and gentlemen on mules returning from the ascent. Just where the real slope began we found *Potentilla grandiflora*, and a little higher, *Epilobium roseum*, *Potentilla frigida*, *Plantago serpentina*, *Arnica montana*, *Epilobium collinum*, *Anemone vernalis* and *alpina*, &c. It was interesting to mark the different appearances presented by the last plant at different altitudes. The first plants we came to, or those in the zone of least elevation, were invariably in the state of full maturity—that is, had their pistils all hoary with down. As we continued to ascend, we found them just come into flower; and still higher, not yet arrived at flowering. Down a rather steep gully, where the footing was very insecure, and where a slip might have increased to a glissade of great *momentum*, and led to serious consequences, I culled abundance of *Saxifraga Aizoon*. Like all saxifrages, it grows in patches. The one in question has a very fleshy appearance. Its leaves are finely serrated and frosted at the margins, which give it a charming appearance, and was, perhaps, all the more pleasing, as it was the first time it had been seen by me. Every botanist knows the thrill of joy which makes his heart rebound on such occasions. We got also *Gentiana germanica*, and shortly after passed into what might be called the region intermediate between spring and winter, or that where

“Of pure, now purer air met our approach.”

MILTON.

Here the contending forces of snow were ranged against those of a more genial and softening character, and it is needless to remark, that with the usual persistence of the

latter, more and more territory had been, and still was, in the course of being gained from the sullen party clad in white that still kept the heights and fastnesses, as promising the best chance of perpetual possession. On this plain or platform, and especially in that part of it farthest from the snow, we saw flowers that had newly arisen from long sleep, for the thick garments that charmed and defended them were now laid aside, and they had the courage to look upon the sun. Fields of stunted anemones were found on the verge of snow, and great patches of daffodils had their cups filled with tears, and their eyes but newly rubbed up after their long winter repose. This reminded me of what I had seen in spring in some of the damp, waste lands of Yorkshire. The territory recently wrested from the snow by the forces of the sky was like that over which a desolating army had passed, for it was brown, blasted, and bare; yet you could see withal that vegetation, just awaked, like a giant refreshed with sleep, was proceeding with all the vigour that is peculiar to alpine regions; green brairds of grass could be seen invading the death that reigned around, and were beginning to clothe those spots with verdure. After winding our way for a considerable time over spongy ground, which afforded bad footing and few plants, we were waylaid by one of those strolling venders of wine and lemonade that frequent the heights. We got past this time; but as she happened to know better than we did the point we were to take in order to ascend the cone, she met us there, and we bargained for a bottle of lemonade, which was very welcome, as we were in profuse perspiration. Near this spot we passed over a large patch of snow. In a few minutes after, summoning up courage, we began to ascend the cone, which proved a rather stiff pull. The fatigue, however, was a little lessened by gathering a few plants, as *Thlaspi alpestre*, *Meum Mutellina*, *Lycopodium Selago*, *Luzula sudetica*, *Thesium alpinum*, *Erigeron alpinus*, *Gaya pyrenaica*, *Cerastium alpinum*, *Luzula spicata*, *Plantago alpina*, *Arabis alpina*, and near the breezy summit, *Saxifraga aizoon*,—the highest point of the Pic=6258 feet, according to Ramond. The Pic de Sancy is a pyramidal rock of porphyritic trachyte, and the highest of the whole mountains of the central plateaus of France. From this proud

elevation, we enjoyed a fine view of the mountains of the Cantal and the surrounding country. On our descent by another route than that by which we had come up, we looked over some dark, bare, and weather-stained precipices, which rose up in black peaks, wild in the extreme. Shelley will help us to describe them as—

“How hideously
Their shapes are heaped around, rude, bare, and high,
Ghastly, and scared, and riven.”

Behind one of these tempest-beaten cliffs, we flushed a raven, who apparently not liking our immediate neighbourhood, croaked from on high over our heads a few proud notes of defiance. By and by he became a speck in the distant cloud, and at length was no more seen. After getting a considerable way down, we came upon a grassy region which was literally damasked with an endless profusion of *Myosotis alpestris*.^{*} Naturalists entertain some doubt as to whether it is merely an altered form of *M. sylvatica*; be that as it may, none could have presented greater delicacy and beauty than it did in the circumstances. We gathered an ample supply. Indeed, we could hardly give over gathering more than we needed, and it was with some regret we left the enchanted spot on which it grew. Not far off *Trollius europæus* was found in abundance. Continuing our course downwards, we found *Allium album*, *Allium Victoralis*; and in the woods still lower down, we got many good plants, as *Habenaria bifolia*, *Digitalis lutea*, *Orchis conopsea*, *Euphorbia hiberna*, *Myosotis palustris*, *Prenanthes purpurea*, *Convallaria Polygonatum*; and on the plains, *Gentiana lutea*, &c.

The day was now far spent, but we got home before it was dark, richly laden with roots and floral treasures, and well pleased with our day's ramble.

After putting ourselves to rights, we sat down to a refreshment with a good appetite. That over, we put some of our plants in paper. As we began to be somewhat encumbered with roots from Pariou, Dôme, and Dore, we determined to have a box made, and to send them to Scotland. Through the kindness of an Irish gentleman that lodged in the same hotel, we were entirely relieved from all concern

^{*} M. Lecoq regards it as a peculiar form of *M. sylvatica*.

about the box. He accompanied us in our vehicle next day to Clermont, and behaved with a kindness that should not be forgotten ; for he charged himself with the transit of it as far as Paris, from which it passed safe to Edinburgh, and I can now look upon the plants in a living and healthy state, and recall all the incidents connected with them.

On arriving at Clermont, we cordially took leave of our friend ; and as we intended to depart the same day, during the few hours that remained we tried to find M. Lecoq, the distinguished naturalist of the place, with a view to assist us in deciphering our strange plants. In this endeavour, however, we failed. He was not at home.

Plants gathered near Mont Dore and the Pic de Sancy.

Ranunculus aconitifolius	Gentiana verna
Astrantia minor	Allium album
major	Viectorialis
Epilobium roseum	Habenaria bifolia
Illecebrum verticillatum	Luzula albida
Potentilla grandiflora	Cerastium alpinum
frigida	Jasione montana
Plantago serpentina	Thlaspi montanum
Thesium alpinum	Digitalis lutea
Myosotis alpestris	Dianthus monspeliacus
Trollius europæus	Orchis conopsea
Narcissus Pseudo-Narcissus	Epilobium montanum
Saxifraga aizoon	Polygonum viviparum
Gentiana lutea	Plantago alpina
Thlaspi alpestre	Nardus stricta
Saxifraga stellaris	Arabis alpina
Veronica alpina	Verbascum floccosum
Meum Mutellina	Aira flexuosa
Anemone vernalis	Homogyne alpina
alpina	Meum athamanticum
Arnica montana	Thymus arvensis
Euphorbia hiberna	Veronica serpyllifolia
Erigeron alpinus	Campanula glomerata
Convallaria Polygonatum	Poa alpina
Gaya pyrenaica	Trifolium alpinum
Epilobium collinum	badium
Valeriana montana	Luzula conglomerata
Gnaphalium norvegicum	Erigeron acris
Prenanthes purpurea	Campanula rhomboidalis
Lycopodium Selago	Phyteuma hemisphaericum
Luzula glabrata	Ranunculus acris
sudetica	Saxifraga rotundifolia
spicata	

The same evening, accordingly, we left Clermont by rail for Lyons. At first we intended, on arriving at the last-named place, to halt for some time to look about us ; but this idea was abandoned, because our time was limited, and, moreover, we had spent a considerable portion of it in Auvergne, which, by the way, formed no part of our original intention. For having turned aside, however, we afterwards felt no regret. We resolved, in consequence, to proceed by forced marches at once to Geneva ; but it cost us a night's sleep. We put up at the Hôtel de Metropole, made, during our stay, some purchases of dried plants, views, &c., and afterwards booked for Chamouni by the diligence. This took us only as far as Sallenche, where we had a table d'hôte, and rested for some time. When the time for starting arrived, we were distributed among the chars-à-bancs, each drawn by a pair of mules, and better fitted for the steep we encountered during our passage up the valley. The tedium of our upland course was greatly relieved by the pleasing jingle of the bells of the mules, the perpetual clatter of French, and by the everchanging views that burst on the sight, of the glorious hills bathed in sunshine, clothed with verdure to the top in many places, and dotted with neat cottages ; and, to add still more effect to the landscape, every here and there some restless waterfall met the eye, rushing with headlong career, and mantled with feathery foam, towards the valley. Every now and then, also, some lovely plant was seen whose fascinations were too great to be resisted. I left the vehicle, therefore, went on foot, and gathered some that were new to me. Among others, I found *Cystopteris fragilis*, *Silene rupestris*, *Clematis Vitalba*. This occupation whiled away the time most delightfully, and that in the face of a burning sun, that shot down his most powerful rays, which were greatly aggravated by their reflection from the hills. As the longest day, however, must have a close, we began to witness some symptoms of its decline, and by that, also, discovered that the slow travelling up-hill was soon to end, for by this time we were within sight of the spire and town of Chamouni. About this part of our journey we passed several tourists returning from their alpine explorations. Among them we could discover some English. We gave them a hearty cheer, to which

they, as might be expected, gave a warm response. After many windings of considerable fatigue and difficulty, we got in about dusk, and took up our quarters at the Hôtel d'Angleterre. It was our good fortune to behold that most splendid of all spectacles—sunset on Mont Blanc. At this, the hour of farewell, the king of day was tipping the head of the aged monarch with crimson and gold,

“ And gave the glacier tops their richest glow.”

SHELLEY.

Eight o'clock was the hour for the table d'hôte ; and as we were standing on the balcony in expectation of the summons to call the guests together, and were musing on the grandeur of the objects which lay around us, most of which were enwrapt in the stole of night, we felt some of that awe which the heights that prop the clouds inspire. Turning the eye upwards, we saw in the distance the aiguilles peering through the evening cloud ; and nearer at hand, and much more solemnly grand, the majestic prince of the chain enthroned in quiet glory, and in something like the state that waits on the queen of night when she is most favourably presented to the eye of the spectator. A scene like that we have but feebly endeavoured to portray is not easily effaced from the memory, and it can be recalled at any time when we turn our thoughts inward.

By degrees the whole glory passed away, and was succeeded by that utter blank which darkness produces ; but just at this moment we were roused from our reverie by hearing the bell for dinner.

We sat down amidst a multitude of Germans, French, Americans, &c. While repairing our exhausted energies with food, we were amused with the musical performances of a Tyrolese who played on the guitar, and gave an accompaniment with the voice ; but as there were many connoisseurs present, and his was not the perfection of art, he was twitted, and somewhat put out of sorts on that account.

As we had heard from a French gentleman who accompanied us in the diligence and chars-à-bancs from Geneva and Sallenche, that a party of French botanists was expected that same day to arrive at Chamouni, we thought we would, if possible, avail ourselves of their assistance, and beg to be

admitted to join in their expeditions on the hills. Looking round on the mixed multitude around the table, my friend accosted a gentleman on the other side, whom he supposed to belong to the party. He questioned him on that score ; he said he was one of the students, and that the professor's name was Monsieur G. A. Chatin, Professeur de Botanique à l'Ecole de Pharmacie de Paris, membre de l'Academie Impériale de Médecine, &c., &c. The next inquiry was whether he thought it would be an intrusion on our part to request the Professor to allow us to join the party in the next excursion. In reply to which he gave us every possible encouragement. After dinner he carried our petition, and came back with the welcome news that Mons. Chatin would be glad to see us near the bridge over the river next morning at six o'clock.

The turn out was worth seeing. There were 180 gentlemen variously arrayed, and accoutred with the requisites for field botany. They were fortified with quadrants of bread, attached to a string slung over the shoulder, furnished with rams and cows' horns, and whistles to sound an alarm, should any wander from the rest. The head was defended with a felt hat, to which green and white veils were attached as a screen against the glare of the sun and snow. Their spuds were rather rude, the vasculum, in general, somewhat small, and long in proportion to the girth ; and last, though not least, each of the party bore an Alpenstock, an indispensable requisite for the ascent, and more especially useful in breaking the impetus of the descent, and, on occasions, well fitted for leaping a *crevasse*.

Thus equipped and full of glee, and the muster being completed, nothing now remained but to give the signal with the blast of a ram's horn. This done, we all began to put ourselves in motion. We passed for some time over a somewhat easy ascent, but very soon began to discover, by the greater exertion that was required, that we were climbing the Alps* indeed.

* The *Alps*, in the Celtic languages, signifies "the heights," "the great masses," "the abrupt and steep rocks." The word contains the Sanscrit *Ar* *Ri* (Al) to elevate, akin to Lat. *oriri*, to rise on high. The Gauls understood by the Alps elevated mountains.

We gathered a few plants on this slope. Then we entered

“The wild woods, among the mountains lone,”—

SHELLEY—

where the climb was still more stiff. Here we found several good plants, as *Silene rupestris*, *Pyrola secunda*, *Veronica urticifolia*, *Campanula barbata*, and higher up, *Tussilago alpina*, *Bupleurum stellatum*, *Sempervivum montanum*, *Gentiana acaulis*, var. *excisa*, *Achillea moschata*, *Ajuga genevensis*, *Veronica bellidifolia*, &c., &c.

One part of the ascent now became so abrupt, that there was nothing for it but to pull ourselves up, by seizing the rhododendrons, or any plant strong enough to support us that presented itself. The bushes of the red rhododendron are the loveliest productions of the Alps. Scattered over the velvet turf they give it the appearance of the richest pattern. The exertion caused by the steepes, the excitement which the sight of the exquisite plants produced, and the persecution of a cloudless sun that shot down upon us his fiercest beams, made all run down with a full stream of perspiration. Happily, however, a halting-place, or the *chalet* of the Brevent, was now in sight. On this upland platform or pasture, therefore, the whole party called a halt. The French sang in chorus the Marseillaise, with great fire and emotion. We entered the *chalet* and partook of what they had to dispose of, as wine, milk, bread, cheese, &c.

After the repast, while the great body of the party was admiring the stupendous and solemn grandeur of Mont Blanc, which, from this point, can be best seen *en face*, a few, as a piece of bravado, passed through the Cheminée, and had some rough work in making the highest peak of the Brevent, on which they planted the tricolor.

For the best and most graphic description of Mont Blanc, as seen from this point, we will borrow a couplet or two from Shelley:

“Far, far above, piercing the infinito sky,
Mont Blanc appears—still snowy and serene—
Its subject mountains their unearthly forms
Pile round it, ice and rock; broad vales between
Of frozen floods, unfathomable, deep,
Blue as the overcharging heaven, that spread
And wind among the accumulated steepes.”

As we proposed also to take the Flegère in our march, we made all possible haste, not waiting for those adventurous spirits who had left us to gain the peak of which we have spoken, and who had been nearly hid from our view by the mist that enveloped them. Seeing them out of danger we left them to follow us, and to keep them on the right track, we made frequent blasts with the ram's horns, to which they responded. By the way, we found among other plants *Rosa alpina*, *Sibbaldia procumbens*, *Asplenium septentrionale*, *Chrysanthemum alpinum*, *Rhamnus pumilus*. We experienced great thirst; and as there was a great lack of streams, we were content with handfuls of snow instead. The day's work as to plant-gathering might be said to be over when we reached the *chalet* of Flegère. We refreshed ourselves with a powerful draught of *limonade*, and immediately after thought of returning to our quarters, which we reached, pretty well fatigued, about sunset.

Plants gathered on the Brevent and Flegère.

Potentilla grandiflora
Silene rupestris
Pyrola secunda
Veronica urticifolia
Campanula barbata
Achillea moschata
Viola calcarata
Tussilago alpina
Bupleurum stellatum
Sempervivum montanum
Gentiana acaulis (var. *excisa*)
Anemone alpina
Myosotis alpina
Ajuga genevensis
Veronica bellidioides
Primula viscosa
Spergula saginoides
Luzula spadicea
Spiranthes autumnalis
Rosa alpina
Viola biflora
Sibbaldia procumbens
Saxifraga aizoon
cuneifolia
Asplenium septentrionale
Agrostis rupestris

Saxifraga muscoides
Cetraria islandica
Spiræa Aruncus
Luzula nivea
Phyteuma betonicifolium
Epilobium montanum
hirsutum
alpinum
Vaccinium uliginosum
Veronica saxatilis
Gnaphalium dioicum
Trifolium alpestre
Potentilla Halleri
aurea
Ranunculus Villarsii
Saxifraga aspera
Azalea procumbens
Alyssum calycinum
Scleranthus perennis
Hieracium Auricula
Alsine laricifolia
Melampyrum nemorosum
Ozaena liliastrium
Trifolium alpinum
Arenaria biflora
Hieracium villosum

Betonica hirsuta	Stellaria cerastoides
Leontodon hispidum	Satyrion nigrum
Veronica fruticulosa	Plantago alpina
Arabis alpina	Phleum alpinum
Myosotis hispida	Hieracium viscidulum
Gentiana acaulis	Hypericum Richeri
Valeriana tripteris	Chrysanthemum alpinum
Hieracium aurantiacum	Leontodon pyrenaicus
Luzula maxima	Hieracium montanum
Homogyne alpina	Cladonia stellata (var. uncialis)
Astrantia minor	Cornicularia jubata (var. bicolor)
Rhinanthus alpinus (var. minor)	Festuca Halleri
Allium Victorialis	Lecanora ventosa
Phyteuma hemisphaericum	Lycopodium alpinum
Inperatoria Ostruthium	Rhamnus pumilus
Arnica montana	Agrostis festucoides
Cardamine resedifolia	Phyteuma spicatum

Our next excursion was to comprehend the Mont Anvert, the Chapeau, Mer de Glace, and the sources of the Arveyron. The morning proved fine, which in all cases may be reckoned the exception in alpine districts. We set out, therefore, crossing the river Arve in the first instance, and making for the other side of the valley where the ascent was to begin. We ascended by a series of zigzag footpaths, the usual method of overcoming steeps as instinctively adopted both by man and beast. Several plants were gathered in the continuous woody region through which we passed, as *Listera cordata*, *Gnaphalium norvegicum*, *Achillea macrophylla*, &c. Some water-venders met us at different stations on our way up, but we happily, at least for some time, got quit of these pests, and reached the *chalet* of Mont Anvert after a good deal of puffing and blowing. Our faces told by their flush that we were in a genial glow. A few minutes were spent here in refreshment. Two or three guides armed with hatchets preceded us over the Mer de Glace, cutting steps when necessary, and lending the inexperienced assistance with their brawny arms and agile limbs when we had to leap a *crevasse*. *Crevasses*, or rifts, are very numerous and perplexing in all glaciers, and often cause the traveller to take a very circuitous route in attempting to cross to the other side. The ice in them has a beautiful sea-green colour which every visitor of the Alps has marked and admired. Every here and there you could

see fragments of granite of various sizes which were the debris of the surrounding hills. They were either frozen into the ice, or freed from its firm grasp by the action of the sun's rays. In the latter case they were invariably surrounded with a little pool of water. It was anything but cold; for the sun sent down his direct rays, and they were reflected from the sides of the aiguilles on the other side, which tended to augment the heat very considerably. On reaching the farther shore of this icy sea of ages we began to herborize a little. We gathered *Silene rupestris*, *Euphrasia minima*, and on coming to a boggy spot we got a plentiful supply of *Primula farinosa*, which reminded us of its more dwarfy eongener *Primula scotica*, which we had gathered in days gone by on the bold headland of the extreme north of Scotland. The loveliness of the plant, located but a few paces from the scene of eternal desolation in the ice, where all dies and nothing lives, endeared it all the more to us. It might be said to have been one of those happy moments of life when hope rises into fruition; for the sight and evidence of sunshine, life, and joyous flowers, had succeeded the winter's gloom in this upper region of the earth, and told us emphatically that the fine, short, but best season of the year had begun. We skirted the ice for a long time by dangerous narrow paths cut in the rocks. The descent soon became both steep and rugged, and exerted a great strain on the muscles of the thigh. This among other things generally puts to the test the pith of the hill traveller. Near this point we came in sight of the azure and fantastic towers of ice which Time had raised as if for his own amusement. Lower down we entered a wood where the viscous, stealthy, and resistless stream gave evidence that it had invaded the forest of pines, some of which it had uprooted, and others it had swept away in its headlong career to the plains below. We will avail ourselves of the poetic and truthful description of Shelley,—

“The glaciers creep

Like snakes that watch their prey from their far fountains,
Slowly rolling on; there many a precipice
Frost and the sun, in scorn of mortal power,
Have piled—domo, pyramid, and pinnacle,
A city of death, distinct with many a tower
And wall impregnable of beaming ice;

Yet not a city but a flood of ruin,
Is there that from the boundaries of the sky
Rolls its perpetual stream ; vast pines are strewing
Its destined path, or in the mangled soil
Branchless and shattered stand."

In the woods, among loose and moss-grown stones, we gathered fine specimens of the beautiful *Epilobium Dodonæi*, and by this time were low enough to hear the roar of the new-born waters of the glacier striving to get free from the icy grasp that had held them so long captive. We therefore bent our steps in the direction in which we supposed the sources of the Arveyron lay. We found, as is generally the case with rivers at their source, that it had several heads. The separate branches emerge from the exhaustless Mer de Glace with great fury, fret and foam, and afterwards unite. Here, as all along the valley, it is of a whitish colour, which is caused by the suspension of fine granitic particles in its waters. It gradually becomes swelled by tributaries from other parts of the valley. By and by it loses a part of its turbulence, and flows on more slowly. We might compare it, in this respect, to one who, by the accession of varied stores of information, becomes thereby more solid, grave, measured, and sedate. After incorporating its waters with those of the Arve, they flow on together for many miles, and at length mingle their tides with that of the Rhone a little below its emergence from the Lake of Geneva.

We will again apply to Shelley for a poetic description :—

" Below, vast eaves
Shine in the torrent's restless gleam,
Which, from the secret chasms in tumult welling,
Meet in the vale, and one majestic river,
The breath and blood of distant lands for ever,
Rolls its loud waters to the ocean waves, and
Breathes its swift vapours to the circling air."

We had now reached the alluvial soil of the valley, pretty well fatigued and hungry enough. We entered a cottage and asked for milk, which was produced, as also bread and cheese, to which we fell with a good appetite ; and upon the strength of this meal we held out till eight o'clock, the usual dinner hour in Chamouni.

Plants gathered on the Mont Anvert, near the Chapeau, the Mer de Glace, and around the sources of the Arveyron.

Astrantia minor	Euphrasia minima
Saxifraga cuneifolia	Primula farinosa
Listera cordata	Epilobium Dodonæi
Gnaphalium norvegicum	Silene rupestris
angustifolium	Cardamine rescdifolia
Meum Mutellina	Spergula saginoides
Achillea macrophylla	Trifolium saxatile
Poa nemoralis	

Our next expedition lay over the hills towards the Swiss frontier by way of the Col de Balme. Accordingly, not to be encumbered with luggage, we left all that was not absolutely necessary with the carrier at Chamouni, paid the fare, and directed the packages to be taken to Martigny. The removal of luggage, &c., over the hills is usually effected by mules—animals of indispensable utility in the high parts of the south of Europe. The day as to weather was anything but desirable. It poured down throughout a plentiful drizzle, or it might be said that all our passage over the hills was a

“Contending with the fretful elements.”

SHAKSPEARE.

Notwithstanding the frowning state of the weather, we girded ourselves with resolution, and wended our way in good time up the valley. About 10 A.M. we halted for breakfast at Argentière, which was the last place of the kind we would meet with for a long time. The mist thickened to such an extent as we toiled up the steep, that we were in danger of losing ourselves; indeed we would have done so to a certainty but for the guidance of one we met, at whom we inquired our way to the pass. Several good plants—the best elixir or panacea to the true botanist for all the ills of fatigue, hunger, and thirst—were secured, of which we will here be content with the mention of one or two,—as *Ranunculus montanus*, *Spiranthes aestivalis*, *Arnica montana* (a valuable medicinal plant), &c. On nearly reaching the highest point of the hill, we passed a number of cowherds, who were at their usual employment, and seemed little or nothing affected by the war of ele-

ments that raged around them in this elevated region,—that is to say, the combined powers of mist and cold, which arose from the highly rarified condition of the air.

We reached the wished-for *chalet* at last. It is kindly located on one of those spots which the genius of solitude and the howling blasts claim as their undisputed possession, and must have often been a welcome sight to many a wanderer among those lonely mountains. Our formidable party entered with a rare appetite, and was disposed of as they best could accommodate us,—bedrooms, and every available foot of habitable space, were put into requisition. We, according to our several tastes, quaffed wine, ate sandwiches, drank coffee,—in short, whatever could be had came not amiss. Then, after a while, there arose the usual accompaniment of noise and youthful merriment, which all who have met on hill, heath, and in Highland glens, and on tempest-struck rocks for similar purposes, can fully enter into the spirit of, enjoy, and realise at the bare mention of it. The repast over, we again breasted the weather on the heights. The thin air was so extremely cold and raw that we could not stand inactive in any one place, for the shortest space of time, without shivering. We felt, therefore, the instinctive necessity of putting ourselves in motion, and of burning our own fuel in the shape of frequent respiration caused by brisk exercise. The best of all cures was soon found in the excitement of gathering some of the choicest plants that elevated regions produce,—such as *Myosotis hispida*, *Hutchinsia alpina*; and, on the bleakest region that fancy could paint or tongue describe, one from which winter had barely retired, we gathered fine specimens of *Arctia glacialis*, and that universal favourite of alpine flower-hunters, the *Soldanella alpina*. This plant, like the primrose tribe to which it belongs, is of surpassing beauty and delicacy, and shows off its charms all the more by contrast with the waste and bleak spots on which it grows,—that is, on those just redeemed from the snow. Its drooping head, of the colour of the azure that awaked it, bends, as it were, in humble reverence to the storm, and is suggestive of modest worth in the dark and gloomy day of adversity, thoughtful, and withal beautiful, because it bows before the Power that guides everything. We gathered also,

among others, *Sedum atratum*, *Thlaspi rotundifolium*, *Thesium alpinum*, *Veronica bellidifolia*; and in the woods we found fine specimens of *Veratrum album*, *Chrysosplenium alternifolium*, &c. On coming to the Swiss frontier we had to produce our passports, and one franc was charged for *visa*. During the toilsome course down to Martigny, which all travellers have remarked on with disgust, we had the tedium considerably relieved by gathering *Campanula Trachelium*, *Scrophularia canina*, &c., and one of the party got a single specimen of the Orchid *Serapias rubra*. The day by this time was pretty well spent, and the town of Martigny, which we thought we should have reached long before, something like a teasing mirage, was still in the distance. Our legs were well shaken with the rough road, and we longed for rest; but it was only by toiling on that we reached it in the evening. We put up at the Hôtel du Cygne. A short time after we had the satisfaction of seeing our luggage arrive quite safe.

At the table d'hôte, where, among various other dishes, we had a steak of chamois flesh, we arranged the preliminaries for the excursion of the following day. It was to be the famous pass of the Great St Bernard. In addition to this, those that liked were to make an early start, and to visit the Pissevache, a fine waterfall. As we two did not rise in time, we got our Alpenstocks marked in the meantime.

Plants gathered on the Col de Balme, and towards Martigny.

Bartsia alpina	Alechmilla minima
Soldanella alpina	dissecta
Hutchinsia alpina	Myosotis hispida
Aretia (Androsace) glacialis	alpina
Trifolium badium	Luzula spicata
Gentiana lutea	Sedum atratum
Prenanthes purpurea	Hieracium aureum
Digitalis parviflora	aurantiacum
Campanula Trachelium	Thlaspi rotundifolium
Chrysosplenium alternifolium	Thesium alpinum
Ranunculus montanus	Geum montanum
Stereocaulon nanum	Arnica montana
Spiranthes autumnalis	Veronica bellidioides
Ononis natrix	urticifolia
Scrophularia canina	Polygonum viviparum
Serapias rubra	Veratrum album

Phleum alpinum
 Cardamine resedifolia
 Alchemilla hybrida
 Veronica aphylla

Linaria alpina
 Arnica Bellidistrum
 Pedicularis verticillata
 Euphrasia minima

PASS OF THE GREAT ST BERNARD.

Shortly after breakfast we were distributed over a set of rude vehicles drawn by mules, which were to convey us over that part of the way which was less productive of plants. In passing through the town of Martigny we saw many evidences of the ignorant superstitions of the people. Bunches of withered plants were hung on the outside of the doors of the rude hovels of cottages, to serve the double purpose of keeping off evil spirits and of invoking the aid of the tutelary Saint James. I saw also a poor, haggard, and miserable-looking woman in woful plight—the very *beau idéal* of despair. She was sitting at her door in the street by a coffin containing a corpse, which was covered with a mortcloth, and surmounted with a crucifix, and a lighted taper—*triste ministerium*, indeed, to do such penance and to sorrow thus as one that had no hope. Instances of goître, which causes frightful distension of the neck, were very prevalent among the female portion of the community to the extent of nearly two-thirds. M. Chatin mentioned a curious circumstance with regard to the specific properties of iodine in the treatment of goître. His attention had been called to the singular fact of goîtres being very prevalent in one village in the Canton *du Valais*, while, strange to say, not a single case occurred in the village next to it. This led him to make inquiries as to what produced the difference. He learned that the inhabitants of the village in which goître was unknown daily used the water of a certain spring. On testing it, it unequivocally showed the presence of iodine. While passing the same place some time after, he asked if the exemption from goître still existed. He received for answer, “*A present les goitreux ne sont pas nombreux, cependant il y en a.*” He enquired, farther, if the people still drank of the same spring. He was told they had some time since, at a great expense, brought pure water from a source higher up the mountain

and had ceased to drink of the spring in which he detected iodine. To this cause, therefore, he attributed the presence of goitre in a place where it was unknown before. This fact shows how important it is to regulate all philanthropic and sanitary measures by philosophie and seientifie principles.

We at length got out of the town and wended our way up the steep. Much beautiful scenery was passed. Every now and then we got a peep of something new. About this point of our journey I leaped out and gathered in a boggy place fine specimens of *Lysimachia vulgaris*, and farther on, *Potentilla argentea*, *Delphinium Consolida*, *Thlaspi arvense*, *Colchicum alpinum*, *Bromus tectorum*, and *Alyssum calycinum*, which last recalled days on which we searched with great care for the plant, now rare, if not wholly extirpated, at Dirleton.

After several hours of a slow upward progress, walking and riding by turns, we came at length to the end of the road practicable for mules. Here we took a refreshment, which was to bear us onward till nightfall, or to carry us to the pass.

Not far from the *restaurant* at St Pierre, we saw a fine example of the effect of running water acting as a natural saw. It had cut a dark deep gully through the solid rock for the river Dranse. Standing on the bridge, we looked down upon the foaming flood, fretting, and still deepening the already deep cut it had made. There were several fine plants growing on the rocks dripping with spray. They were tempting enough, but to have attempted to secure them would have been the extreme of folly. We therefore left them to their own way, and soon after began to botanise in fine style, so that we soon forgot the chagrin of not being able to capture the prey apparently so inviting. We procured fine specimens of *Gentiana acaulis*, *Sempervivum arachnoideum*, *Dianthus Carthusianorum*, *Cacalia albifrons*, *Orchis globosa* and *nigra*, *Gentiana rubra*, *Juncus alpinus*, *Mulgedium alpinum*, and *Gentiana purpurea* ad libitum, &c.

About this part of the ascent we encountered one of those melancholy specimens of humanity in the shape of a cretin, or idiot of the Alps, who was exceedingly loud and importunate in his demands for charity.

With various success in plant-gathering, we toiled on for a long time till we came on the line of poles that is intended to guide the traveller straight to the hospice, when the snow has obliterated all traces of a path. The snow lay in many places in large patches, and had but recently retired from those parts that were exposed. On one of these last we gathered, with a thrill of joy and satisfaction, *Ranunculus glacialis*; whereat M. Chatin was heard to exclaim, "*Voilà une plante qui fait battre le cœur du botaniste.*" The ground was soon swept of every specimen in flower. We had the good fortune, however, to meet with it again higher up, and elsewhere. We found, also, *Pedicularis rostrata* and *Androsace lactea*. Although our strength was pretty well spent with the day's journey, yet another Alp, more steep than all that had gone before, had to be surmounted before we could reach the goal of our wishes, or the hospice which, at this time, was full in view. A little resolution overcame the difficulty, and we were seen as a long line of stragglers, and, according to physical ability, gaining the summit, with the rearward a good way below. Time at last brought the formidable band, all hungry and weary, to the door of our quarters for the night, or to

"That House, the highest in the ancient World,
And destined to perform from age to age
The noblest service, welcoming as guests
All of all nations, and of every faith—
A temple sacred to Humanity."

ROGERS.

On entering, the object of our visit was well understood, but it did not seem so easy to dispose of such a multitude. After considerable parleying and exchange of reasons for and against, the hospitable monks conducted a portion of our party in twos to each bed where they were to sleep; the rest, in which my friend and I were included, were afterwards accommodated. All things being thus amicably settled, we were content; and what was essential to our comfort, and a most pleasant sound to the ear, we soon after heard—the bell tolled for supper, to which we sat down with right good-will, and did ample justice. The monks served. We had several rounds of stewed meat and bread,

with a plentiful allowance of the *vin ordinaire*, and, as a necessary accompaniment, plenty of noise and merry-making. This last the good-natured monks took in good part ; indeed it must have acted as an excellent alterative to their monotonous kind of life. After supper, nothing remained but to retire to rest. We therefore all took our several ways, the monks preceding and opening the doors with their great keys. The greater number were to sleep two in the same bed ; but we were more fortunate in getting a room in which there were three beds, and each had one to himself. The air, as might be expected at such an altitude, was cold in the extreme ; but for this, provision is made in the double windows and capital beds, well covered with a thick layer of sheets and blankets, and a large down bolster for the feet. Being well entertained, as we have said, and having paid for our sleep with the toils of the day, we soon forgot all in sweet oblivion, and, lulled by the gentle sough of upland air, fell into that agreeable state in which tired nature courts the restoration of her exhausted powers, and rose invigorated, and ready for the work of a new day.

At an early hour we entered the *église*, and saw the brotherhood at their devotions, or, as Longfellow has expressed it—

“ At break of day, as heavenward
The pious monks of St Bernard
Uttered the oft-repeated prayer.”

After breakfast the holy fraternity produced for sale some rosaries, coins or medals, and crucifixes, of which the French bought rather extensively. We saw, also, specimens of the fine dog, of which so many fabulous stories have been told. As nothing is exacted of the traveller for entertainment, but as it is expected that every one that partakes of their bounty shall at least drop into the box as much as he would pay for a night at a hotel, each contributed his share in due form. We had now some time to look about us. We examined the *morgue*. On looking through a grating, we saw bleached and ghastly specimens of mortality, to the number of ten or more, placed upright or leaning against the wall, and the floor of this charnel-house was strewed all over with skulls, disjointed bones,

and fragmentary portions of those who had perished in the snow.

Under the guidance of the Curé, we botanised for some time on the Italian side of the Alps, and found some excellent plants but just awaked from their long winter's sleep. While so employed I was amused with the jerking movements of a redstart (*Phænica ruticilla*). It was flying about from rock to rock, all alone—a character of the bird is to seek solitude, but this was solitude itself.

Part of the details of the plants found about the hospice, and towards Italy, were *Ranunculus aconitifolius*, much stunted and shortened at the internodes, and very different in form from what we had seen on the plains; *Gagea lutea*, *Saxifraga bryoides* and *muscoides*, *Erigeron alpinus*, *Senecio incanus*, very few specimens of which were yet in flower; *Anemone vernalis* and *alpina*, *Androsace lactea* and *obtusifolia*, *Gentiana nivalis*, *Ranunculus pyrenæus* and *glacialis*, &c. A fuller list will be seen at the end of the excursion.

We herborised as long as we deemed it necessary, after which we took leave of some of our party, among whom was M. Baillière, son of the famous bookseller in Paris, who was bound for Italy. We bent our steps towards the pass again, and made for Martigny. This did not occupy us so long as the ascent. A few plants were found which we had not seen on our way up; all which, however, will appear in the general list. On arriving at St Pierre, we found the *voitures* waiting for us. We had a table d'hôte at Liddes, and resumed our journey, during which we made some escapes. One arose from the *conducteur* having left the mules to themselves. Being freed from restraint, they were about to diverge from the somewhat narrow road, and hurl us down the steep heads over heels, when, luckily, the Professor, with his wonted acumen, instantly seized the reins, and averted the danger that might have ensued had they taken their own way. Farther on, the mules of our vehicle both came down together, and by the impetus which they had acquired on the slope, mules, vehicle, and all within it, made a glissade of a very considerable length. All being again happily adjusted without accident either to man or beast, we were soon trotting it along. When we came to the orchards on the side of the road, the evening now ad-

vancing, I was much pleased with the crickets among the branches. The trees seemed to be perfectly alive with them, and the noise they were making was quite equal to that of the chirping of a number of young birds, realising what Byron says in the fine passage—

“How have I loved the twilight hour and thee!
The shrill cicadas, people of the pine,
Making their summer lives one ceaseless song,
Were the sole echoes save my steed's and mine,
And vesper-bells that rose the boughs along.”

We drove on for some time after this, and got into Martigny at dusk.

Plants gathered on the way up to the Great St Bernard, and on the Italian side of the Alps.

Delphinium Consolida	Pedicularis verticillata
Alyssum calycinum	Saxifraga androsacea
Avena elatior	Pastinaca sativa
Orchis viridis	Verbascum nigrum
Lycopodium helveticum	Melica ciliata
Dianthus sylvaticus	Euphorbia Gerardiana
Adenostyles albifrons	Hippophaë rhamnoides
Colchicum alpinum	Carduus nutans
Trollius europæus	lanceolatus
Botrychium Lunaria	Cirsium eriophorum
Gentiana nivalis	Carlina Chamæleon
Mulgedium alpinum	Sanguisorba officinalis
Gentiana germanica	Verbascum floccosum
Polytrichum nanum	Dianthus prolifer (var. uniflora)
Potentilla argentea	Phleum bulbosum
Rumex alpinus	Dianthus sylvaticus
Gentiana acaulis	Stachys recta
Galeopsis Ladanum	Onobrychis sativa
Lysimachia vulgaris	Artemisia campestris
Origanum vulgare	Sisymbrium obtusangulum
Thlaspi arvense	Laserpitium Silcr
Lychnis sylvestris	Epilobium spicatum
Saponaria ocymoides	Campanula thyrsoidea
Gentiana glacialis	Neslia paniculata
campestris	Sempervivum arachnoidcum
Erigeron alpinus	Trifolium badium
Bromus racemosus	Selinum carvifolium
tectorum	Leucanthemum grandiflorum
Dianthus Carthusianorum	Orchis nigra
Geranium rotundifolium	Erigeron uniflorus
Veronica bellidioides	Gentiana rubra
Orchis globosa	Juncus alpinus
Pedicularis rostrata	Gentiana punctatæ-purpurea

Scirpus compressus
 Carex Goodenovii
 Glyceria alpina

Anthyllis montana
 Ornithogalum fistulosum

*Plants found on the Italian side of St Bernard, and during
 the Descent.*

Saxifraga bryoides
 muscoïdes

Draba alpina

Erigeron alpinus

Cherleria sedoides

Anemone vernalis

 alpina

Habenaria viridis

Lepidium rotundifolium

Senecio incanus

Androsace lactea
 obtusifolia

Gentiana nivalis

Ranunculus glacialis

Doronicum Pardalianches

Gagea lutea

Ranunculus aconitifolius

Petasites albus

Sambucus racemosa

Pedicularis ascendens

Phyteuma hemisphaericum

Nepeta Cataria

Ranunculus pyrenæus

Allium Schœnoprasum

Our next route was to be the Gemmi Pass. We all booked for Sion in the first place, from which last we two took the Diligence, and separated from our French friends, whom we did not see again till the evening of the same day at Lœèche. The day proved very disagreeable, raining almost throughout, and as the road was very steep, we necessarily crept along at the usually slow pace of the Diligence. Notwithstanding the unfavourable state of the weather, we were much delighted with the ravishing scenery we beheld at every turn of the winding road by which the Alps can be ascended. The seething mists lay on every height like a charmed robe, concealing much that might otherwise have appeared; yet when they partially broke up they revealed beautiful spots of green, and the ears meanwhile were greeted with the rush of foaming streams and leaping waterfalls. The hope also of a brighter day on the morrow helped to bear us up during our tedious march. Thus was beguiled the irksomeness of the way, and by and by we found ourselves at the end of the journey. We took apartments at the *Hôtel de la Maison Blanche*, and made proof of the famous warm baths by an actual ablution. We saw the professor some time after, and heard all the proposals about the ensuing trip, after which we retired to rest. Before starting we visited the baths, and saw the invalids in the water with their little floating tables, on which we saw

newspapers, chess, and coffee cups. All these appliances are intended to cure the *ennui* attendant on a four or five hours' stay in the water, in obedience to medical prescription.

By six o'clock, our muster in the square was complete ; a few minutes after which we moved off for the hills. The weather as yet appeared to be in a doubtful state ; but as the day advanced, the gloom passed away, and it proved fine—a very common occurrence in alpine regions. We passed through a series of upland pastures, and gathered by the way several plants, such as *Anemone hepatica*, *Calamintha alpina*, *Stachys alpina*, and many also that we recognised as old friends in our native land ; as *Linum catharticum*, *Chenopodium Bonus-Henricus*, *Achillea Millefolium*, *Alchemilla vulgaris*, &c. The ascent soon began to be more difficult, and our toils necessarily increased ; but there was even in such circumstances the consolation, that we were nearing by every step an excellent field for plants. The day, moreover, broke up, and the steeps were enlivened every now and then with a passing group of tourists, some mounted on mules ; others, that is, ladies, were carried on a *chaise à porteurs*, and followed by a relay of sturdy fellows, ready to take the places of those who became fatigued. The dark steeps over head were now becoming darker as we approached them, and frowning over us in proud defiance, which could not fail to inspire us with a feeling of awe. We continued to wend our way by many zigzag paths, and from the place where we stood thought it impossible that any passage could be effected over what seemed to us cliffs of sheer height ; but a little patient, upward progress, resolved the difficulty. The Swiss are the best road-makers in the world, and can make a road practicable where others, with less experience, would pronounce it utterly impossible. Another party of ladies carried by *chaises à porteurs* passed us about this part of our journey. The Swiss porters, probably to lighten labour with a song (for, be it remembered, the lady was corpulent), struck up one of their native airs, the notes of which were re-echoed with fine effect from the surrounding rocks. The burden of it still lives, and will continue to live in my memory, for it had such a native wildness and beauty. The chorus sounded something like *wa—y—oo*, with the notes greatly prolonged. By this

time we were getting better and still better plants, on account of the increasing altitude, and of course our enthusiasm was also in the ascendant. One spot we came to was a garden indeed,—an enchanting spot,—where we lingered a good while. It was covered over with a stratum of newly-formed soil; and these spots, *cæteris paribus*, are those generally where Nature displays her virgin fancies, or those where floral gifts of the greatest value are shed. To instance a few, we gathered *Dryas octopetala*, *Oxytropis campestris*, *Pinguicula alpina*, *Myosotis alpestris*, *Gentiana acaulis* and *bavarica*, *Silene acaulis*, *Cerastium latifolium*, *Arabis alpina*, *Gentiana nivalis* and *glacialis*, &c. After some good climbing and excellent herborisation—a perfect compensation to the zealous student—we had the satisfaction of seeing the pass quite near. A few minutes more, and we got through the defile in a long line, each holding precedence according to physical ability.

Another scene here opened up,—wild, bleak, and desolate in the extreme. A feeling of chill met the eye, and all the senses; for though Winter had resigned his claim for the most part, yet Spring, his successor, had some difficulty to maintain his ground. The evidence, however, that a change had passed over the place, appeared from the gifts of Flora, that she had come and strewed with generous hand on the damasked carpet of green, which certainly was not equally beautiful all over. I was the first to gather the rare *Ranunculus parnassifolius*. In some spots the *Androsace carnea*, and especially the *Hutchinsia alpina* was in such profusion that it whitened large patches of ground. They formed a beautiful contrast to the masses of unmelted snow, and the cold-looking tarns that occupied the hollows at no great distance. Robed in white, the emblem of purity, youthful innocence, and beauty, they endeared themselves so much to us, that we could hardly refrain from gathering more than we actually needed. Our way subsequently, though unequal, was down hill, and continually enlivened by the sight and attractions of some new plant. It was this charm that led us on from stage to stage. We therefore footed it along till we came to the *chalet*, where we repaired our animal powers for the good stretch that yet lay before us. Soon after this we gathered *Rhododendron hirsutum*, and some

others that will be seen in the general list. At every turn of the path we got splendid peeps of alpine scenery. On a flat pastoral spot we gathered *Erica carnea*, *Oxytropis montana*, *Petasites niveus*, *Solidago minuta*, *Tofieldia alpina*, and *Primula Auricula*. I spudded up four or five specimens of this last, and dried them among the rest. On coming home and examining them at least ten or twelve days after, I found life not altogether extinct, as manifested by one or two small green leaves on the crown of the root. This induced me to try to restore them to life. In this attempt I succeeded, and can now view them clad in lively green, and thriving far from their native seats. It would appear from what has been said, that plants such as those in question, which are subject to the conditions of greatly-protracted dormancy, necessarily possess great tenacity of life.

The territory to which we afterwards came yielded good plants, such as *Polystichum Lonchitis*, *Thalictrum aquilegifolium*, *Cotoneaster vulgaris*, *Hieracium villosum*, *Aquilegia vulgaris*, &c. All along the range of woods which we threaded in our downward progress, we were adding to our store of plants. Among others, we found *Pyrola minor*, *Saxifraga cuneifolia*, *Campanula pusilla*, *Paris quadrifolia*, *Dentaria digitata*, *Actæa spicata*, and *Oxytropis montana* again appeared in abundance.

By this time we were in sight of Kandersteg. Its plains and fields wore the aspect of neatness, comfort, and high cultivation. This remark is not without its significance. Its Protestant profession explains the whole matter.

We expected, when we reached the inn at the foot of the steep, to be able to hire some *voitures* to take us to Inter-laken, for our strength was pretty well exhausted with the long day's march up hill and down dale. In this endeavour we did not succeed. There was therefore nothing left for it but to trudge on to another stage, where we might succeed. We had not now the excitement of plant-gathering to beguile the tedium of the road, and certainly we felt it more. Some fine specimens of contorted schist were seen on our right. The wavy lines were most beautifully regular, and showed that the now consolidated mass of hard rock had once been in a very plastic and yielding condition, to admit of being doubled up like a lump of dough or clay in

the hands of a baker or potter, and which either workman can mould at will.

The long-wished for inn at length was reached. We entered and tried to bargain for carriages; but the prevarication and extortion of the landlord were sufficient reasons for waiving any bargain with him—so we again took to the road, and toiled away as before. This disappointment was an addition to our former fatigue and chagrin; but, as it could not be helped, we were content to submit without a murmur. Our line of march was more irregular than ever, according to the varying strength of the party. A few, including the Professor—the more resolute—my friend and myself, kept together, and got into Frütigen about nightfall. We took apartments in the Hôtel de la Poste.

The stragglers did not arrive till long after we had supped; and when they did, they set the place in an uproar. They sounded the rams' horns as a signal which we understood, and blew long and lustily—rejoicing, no doubt, on account of the fatigue of the day being at an end, and anxious both to let us know they had arrived, and at the same time to find our quarters. If the matter had ended there, it would have been well, but it so happened that it did not; for to some, and to one in particular, it gave an uncertain sound, or rather one of a different significance. The burgomaster understood it as the signal for fire somewhere in the town. He therefore rushed out, and followed in the direction from which the sound came. On coming to the door of the hotel, he attacked the aggressors, and regarded the whole affair as a mockery of him and his importance, and so flew up into a mighty rage. The fire and retorts flared for a long time, and it was no easy matter to pacify him by offering an explanation how the mistake had been committed. The advance-guard, standing apart, enjoyed, as might be supposed, a hearty good laugh at his expense.

Soon after the squabble we retired to rest for the night, as we contemplated some work next day.

Plants gathered on the Gemmi, and towards Kandersteg.

Xeranthemum inapertum	Calamintha alpina
Helianthemum celandicum	Anemone hepatica
Aconitum lycoctonum	Stachys alpina

<i>Linum catharticum</i>	<i>Androsace carnea</i>
<i>Chenopodium Bonus-Henricus</i>	<i>Hutchinsia alpina</i>
<i>Achillea Millefolium</i>	<i>Saxifraga oppositifolia</i>
<i>Prunella vulgaris</i>	<i>Veronica aphylla</i>
<i>Gypsophila repens</i>	<i>Myosotis alpestris</i>
<i>Alchemilla alpina</i>	<i>Gentiana acaulis</i>
<i>Euphrasia vulgaris</i>	<i>bavarica</i>
<i>Phyteuma orbiculare</i>	<i>Lycopodium selaginoides</i>
<i>Globularia cordifolia</i>	<i>Dianthus prolifer</i>
<i>Lycopodium clavatum</i>	<i>Ranunculus alpestris</i>
<i>Asplenium viride</i>	<i>Sambucus nigra</i>
<i>Anthyllis vulneraria</i> (var. <i>albescens</i>)	<i>Doronicum scorpioides</i>
<i>Dryas octopetala</i>	<i>Galium hercynicum</i>
<i>Asclepias Vincetoxicum</i>	<i>Cerastium latifolium</i>
<i>Campanula pusilla</i>	<i>Aspidium fragile</i>
<i>Saxifraga aizoides</i>	<i>Viola calcarata</i>
<i>Polypodium Dryopteris</i>	<i>Sesleria cærulea</i>
<i>Geranium Robertianum</i>	<i>Aconitum paniculatum</i>
<i>Asplenium Trichomanes</i>	<i>Aster alpinus</i>
<i>Polystichum Lonchitis</i>	<i>Draba aizoides</i>
<i>Linaria alpina</i>	<i>Salix herbacea</i>
<i>Asplenium Ruta-muraria</i>	<i>reticulata</i>
<i>Arabis alpina</i>	<i>Saxifraga bryoides</i>
<i>Galium saxatile</i>	<i>Plantago alpina</i>
<i>Saxifraga biflora</i>	<i>Alchemilla vulgaris</i>
<i>Aizoon</i>	<i>Potentilla grandiflora</i>
<i>Valeriana tripteris</i>	<i>Bryum capillare</i>
<i>Cerastium arvense</i>	<i>Achillea moschata</i>
<i>Saxifraga muscoides</i>	<i>Doronicum Pardalianches</i>
<i>Bellidiastrum Michellii</i>	<i>Primula farinosa</i>
<i>Antennaria dioica</i>	<i>Anemone vernalis</i>
<i>Primula viscosa</i>	<i>Hieracium aurantiacum</i>
<i>Encalypta ciliata</i>	<i>Senecio Doronicum</i>
<i>Parnassia palustris</i>	<i>Veronica fruticulosa</i>
<i>Helianthemum grandiflorum</i> (var. <i>alpinum</i>)	<i>Gentiana nivalis</i>
<i>Gentiana campestris</i>	<i>Ajuga alpina</i>
<i>Silene acaulis</i>	<i>Cochlearia saxatilis</i>
<i>Ranunculus parnassifolius</i>	<i>Galium sylvestre</i>
<i>Aconitum Napellus</i>	<i>Thesium alpinum</i>
<i>Tofieldia alpina</i>	<i>Silene inflata</i>
<i>Primula Auricula</i>	<i>Helianthemum vulgare</i>
<i>Pedicularis verticillata</i>	<i>Veronica saxatilis</i>
<i>Erigeron alpinus</i>	<i>Sedum atratum</i>
<i>Oxytropis campestris</i>	<i>Daphne Mezereum</i>
<i>montana</i>	<i>Bartsia alpina</i>
<i>Cystopteris dentata</i>	<i>Rhododendron hirsutum</i>
<i>Viola biflora</i>	<i>Geranium sylvaticum</i>
<i>Pinguicula alpina</i>	<i>Gentiana glacialis</i>
<i>Polygonum viviparum</i>	<i>Vaccinium Myrtillus</i>
	<i>Vitis-Idæa</i>
	<i>Arenaria ciliata</i>

Globularia nudicaulis
Myosotis montana
Petasites niveus
Solidago minuta
Biscutella lævigata
Erica carnea
Hieracium villosum
Primula viscosa
Rubus saxatilis
Satyrium viride
Aconitum tauricum
Thalictrum aquilegifolium
Phleum alpinum
Geum rivale
Aconitum nigrum
Cotoneaster vulgaris
Gymnadenia conopsea
Orchis nigra

Phyteuma betonicifolium
Habenaria viridis
Cirsium tuberosum
Centaurea montana
Hepatica (Anemone) triloba
Aquilegia vulgaris
Chærophylum hirsutum
Astrantia major
Saxifraga cuneifolia
Rhododendron ferrugineum
Gentiana asclepiadea
Pyrola minor
Campanula pusilla
Dentaria digitata
Crepis paludosa
Actea spicata
Paris quadrifolia
Neottia ovata

By 5 A.M. we were all in readiness for the Bus which was to convey us to Thun. Being set down, we walked what remained of the road to the lake. A short time after, the steamboat started for the other end. We got breakfast on board, and enjoyed the delightful scenery that continually opened up as we glided along the dark and smooth water. On arriving, we hired a vehicle to take us to the famous fall of the Staubbach. Our number, from this fact, will be seen to have greatly diminished. I have no very pleasant reminiscence of this drive, for it was long, and we were so closely packed that I felt sore and cramped during the whole journey. Glad was I, therefore, when we came in sight of the fall. This most delicate "water-smoke," for such is its meaning when interpreted, falls in very small and flaky drops from the ledges of the rock over which it is precipitated, and produces such a fine and softened effect that it might be likened to a long gossamer web of water stretched from the top of the rock to its very base. It has the best effect when not approached too closely. Here we were dunned in a new way for a dole. A man, having a long wooden trumpet, at least six feet, blew a long and powerful blast, and the surrounding hills echoed it back with a fine effect. As we had, up to this point, got all our Alpenstocks marked with the names of the different places of note which we had visited, we added Staubbach to the rest. This done, we retook our seats and returned to the lake.

Some little time was at our disposal before starting. This we profitably employed in looking about us for a few plants, the names of which are as follows:—

Plants found around the Interlaken end of the Lake Thun whilst waiting for the boat.

Viburnum Opulus	Teucrium montanum
Salvia viscosa	Anthericum ramosum
Clematis erecta	Carex vesicaria
Cichorium Intybus	Pimpinella vulgaris
Centaurea Jacea	Allium vineale
Calamintha alpina	

During our return trip in the steamboat, we made the acquaintance of M. Rüttimeyer, Professor of Geology and Palæontology in the University of Basle, who, though he modestly said of himself, "*Je m'occupe de la Botanique seulement pour m'amuser*," evinced, notwithstanding, such a profound acquaintance with the floras of Europe that it perfectly amazed us. He was just returning from the Schilthorn, where he found in abundance, among others, *Aretia glacialis*, *Androsace lactea*, and *Gentiana imbricata*, of which he kindly gave us specimens. He stated to M. Chatin how much he had been astonished, while botanising in the forest of Fontainebleau, to find there some of the choicest Swiss plants, and spoke with great enthusiasm about that district of France. He farther showed that the flora of eastern Switzerland presented a close analogy to that of Carinthia, Carniola, and the Tyrol, and that the western parts of Switzerland, and the adjoining mountains of Dauphiné, had many plants in common; and ended by saying that the Weissenstein and the Bernese Oberland mountains were the great rendezvous for the excursions of the students of botany in Berne. M. Chatin observed, also, that the flora of Dauphiné, and that of the Alps of the Valais, and, strange to say, their patois also, are very analogous the one to the other.

The flora of France may be classed generally under the following divisions, each having separate and distinct characteristics:—

1. The district of the Ardennes.

2. The Vosges mountains.
3. The Jura chain.
4. The great district of the Alps of Dauphiné around Grenoble and the Grand Chartreuse.
5. The central districts of the Great Plateau Central of Auvergne.
6. The Pyrenees in the east and west.
7. The embouchure of the Loire and surrounding district.
8. Brittany and Normandy.

We took the rail for Berne, having previously sent on the luggage through the post. This pest of travelling, and well called *impedimenta*, we got next morning quite safe on paying expenses. We lodged for the night at the Hôtel de la Couronne. This is a great establishment. The domestics seemed to be greatly puzzled what to make of my now very much increased store of dried plants. They regarded them as something unusual. As a relief to their astonishment, they afterwards saw them spread out to be aired on the floor, for I began to be straitened for paper. I purchased a supply which was infinitely superior to anything I had ever seen, and took care that the former gatherings were changed and the new acquisitions put up.

Berne is a fine old town, and impresses one with its wealth, consideration, and importance. A stream runs through the principal street, and the beautiful and well filled shops are for the most part protected by piazzas. Here our party thinned out more than ever. This had been going on since the ascent of St Bernard, but the number now became so gradually small and sensibly less, that it was reduced to four, viz., M. Chatin, a French student, my friend, and myself.

Our next and last projected expedition was to the Jura chain by Soleure to the Weissenstein Mountain. We took the rail, therefore, arrived in the afternoon, and lodged at the Hôtel de la Couronne, and made the ascent the same day. Our route lay through the Hermitage of St Verena, a fine, quiet, woody retreat, whose solitude is only disturbed by the flow of a little stream that prattles over its pebbly bed. We gathered a few plants here, which will be seen in the sequel. We came at length to the abode of

the hermit. It is a little cottage situated under the frown of a rock, shaded with trees, and close by the little stream already mentioned, which is here crossed by a bridge. In order to feed the flame of his devotional feelings, the holy man has full in view on shelving rocks, all the mementos of a suffering Saviour, such as the Ascent to Calvary, the Crucifixion, &c., &c. We saw the *solitaire* near his lonely dwelling. He was of diminutive stature, and appeared to be somewhat advanced in age. He bore all the marks of one that was accustomed to penance, and all the austerities of his way of life. It struck me, however, from the manner in which he eyed us askance, that he had a little sprinkling of cunning, and that he expected us to give him something in the shape of money. He pointed out our way to the heights. Shortly after this I caught a fine large specimen of a cricket, a great long-legged fellow, who in self-defence made his horny jaws meet with great force on my forefinger. I soon quieted his fury by a firm pinch in another direction, and thereafter committed his corporation to a bottle containing spirits, for his preservation as a mummy. We very soon got a peep of the mountain chain through the woods; but what a change from the peaky cliffs, the aiguilles, and the bold prominences of the territory we had left behind. All now was flat, tame, and quite in keeping with the usual style of the limestone formations. In our upward progress through the wood we found several plants, as *Lilium Martagon*, *Brachypodium sylvaticum*, *Campanula Rapunculus*, *Geranium columbinum*, *Epipactis atro-rubens*, *Ribes alpinum*, *Helleborus fœtidus*, *Draba aizoides*, &c. In the clefts of the limestone rocks we found *Asplenium Halleri*, many roots of which were secured, all of which have since succeeded well; *Asplenium viride*, *Asplenium Ruta-muraria*, and *Arabis turrita*, in great abundance.

As we toiled up, we heard

"From the steep
Of echoing hill and thicket,"

the Tir Federal of the Swiss rifles who were practising in the plains below.

By and by we reached the highest point, on which stands a hotel at an elevation of 3950 feet above the level of the

sea, and 2640 above the river Aar at Soleure. Here we enjoyed a glorious prospect, and saw within view, though separated by a distance of at least 120 miles, the whole panorama of the Alps. We could distinctly make out the Jungfrau with her virgin snows atop; the Brevent; but among them all, the monarch Mont Blanc appeared pre-eminent—"still, snowy, and serene." In short, the whole sweep of the snow-clad heights were seen. Between these far-lying yet distinct objects, the eye wandered over the Lakes Morat, Bienne, and Neuchâtel; and it may be said in one word, that the landscape furnished out one of those sights which amply repays all the labour of climbing, and once beheld is painted on the mind's eye for ever.

After quaffing a little beer, we turned off in another direction, and from a commanding point took a peep into the valleys towards France. As the day was now evidently waning, we were warned about retracing our steps homeward. If we had been benighted in the extensive woods through which we had to pass, it would have been no easy matter to have found our way out. We were, however, fortunate enough to thread their intricacies by the help of the feeble light that remained,

"Till the star that rose at evening bright"

shone out, and helped us to pilot our unknown path through the gloom that soon became universal.

Arrived at the hotel, we dined for the last time together. Among other dishes, we had an *omelette* of the *Cantharellus ciborius*, which the cook, either being unacquainted with, or apprehensive of danger to his guests, administered in very small quantity. When questioned on the subject, it was found that he had thrown away the greatest part of them. The party, reduced from 180 to 4, now wanted almost all that mercurial spirit we had seen when it was in full strength. The fatigues of the day recommended us to retire to rest as soon as possible. Next day we took leave of the Professor and his friend, who took the rail for Paris together; and we two booked for Zurich, to recover some extra luggage we had sent thither. It was with some regret that we separated, having experienced so much kindness and attention at their hands during the whole time we had

accompanied with them.* Common pursuits touch a chord which makes all men kin; but botanical excursions, with all the excitement, hardships, and toil attendant on plant-gathering, necessarily endear to each other all those who took a part in them, and are indelibly imprinted on the mind.

Plants found near the Hermitage of St Verena and on the Weissenstein and R  the Mountains, near Soleure.

Verbena officinalis	Phalangium ramosum
Prenanthes muralis	Melica ciliata
purpurea	Medicago minima
Maianthemum bifolium	Centaurea Scabiosa
Ægopodium Podagraria	Draba aizoides
Brachypodium sylvaticum	Cochlearia saxatilis
Melica uniflora	Senecio saracenicus
Campanula Rapunculus	Dentaria heptaphyllos
Salvia pratensis	Campanula pusilla
Onobrychis sativa	Asplenium Halleri
Galeopsis Ladanium	viride
Linaria minor	Ruta-muraria
Galeopsis Tetrahit	Coronilla minima
Vicia sativa	Erinus alpinus
scipium	Arabis hirsuta
Geranium columbinum	Lonicera Alpigena
Epipactis atro-rubens	Teucrium montanum
Pyrola secunda	Globularia cordifolia
Monotropa Hypopitys	Cotoneaster vulgaris
Trifolium medium	Hippocrepis comosa
Cantharellus ciborius	Jasione montana
Gentiana crueiata	Calamintha alpina
Solidago Virgaurea	Heracleum montanum
Cirsium tuberosum	Adenostyles alpina
Hieracium murorum	Arabis alpina
Polypodium Dryopteris	Stachys alpina
Coronilla Emerus	Cratægus latifolia
Convallaria verticillata	Spiræa Aruncus
Pimpinella magna	Gnaphalium dioicum
Ribes alpinum	Erigeron alpinus
Polygonatum vulgare	Carex frigida
Peucedanum vulgare	Gentiana germanica
Helleborus foetidus	Polygala amarella
Thesium montanum	Adenostyles albifrons
Laserpitium latifolium	Cynosurus cristatus
Libanotis montana	

* M. Chatin, whose courtesy to my friend and myself can never be sufficiently estimated, insisted upon giving us, in the presence of many distinguished men, the undeserved post of honour at the dinner-table by his side, and in every way sought to render the trip as instructive and valuable to us as possible. The unpretending friendship and hospitality he shewed us will ever remain a green spot in our memory.

Being now alone, as at first, my friend and I began to think of looking homeward without delay; but as we had sent to Zurich from Geneva our superfluous luggage, we were necessitated to turn aside and claim it. This done, and now very considerably encumbered, we set our faces northward, taking Basle by the way, where we halted for a night to examine and overhaul our plants. We then made for Baden-Baden, that great and fashionable resort, where you see nothing but equipages driving to and fro in all directions, where there is a continual succession of arbours and alleys green, which furnish fine cool retreats from the mid-day sun, and all the manifestations of the wealth which the influx of tourists pours into the place. Here we stayed one night, and departed next morning for Heidelberg. We spent a few hours in the old city, visited the castle, and saw all the relics of antiquity, as coats of mail, visors, swords, battle-axes, spears, and antique matchlocks. From the bulwarks of the castle the view of the Neckar and the surrounding country is most magnificent. After having satisfied our curiosity with sight-seeing in this famous seat of learning, we proceeded next to Mannheim, where we did not halt, but set off immediately for Mayence, where we took quarters for the night. After tea we were highly delighted with the conversation of an English gentleman, who having had from his earliest days an irresistible propensity for travelling, and also the means for gratifying that propensity, kept us to a late hour recounting his adventures among the Tartars, Turks, and, in short, all the nations of the world. His stores of information respecting men and manners seemed to be perfectly inexhaustible. We proposed next to get a sight of the agates of Oberstein. We therefore took the rail for that place by way of Bingerbrück and Kreutznach, and walked a considerable way, getting over the ground as fast as possible, that we might be back in time for the return train. On calling on the lapidary of the place, we found the quarries were at a great distance, so that we abandoned the idea of visiting them. We saw, however, a few at his house in the rough state, and to keep up the memento of the place, purchased some very fine polished ones. All which being ended, we put mettle to our heels, and reached the terminus in time for

the train that was to convey us to Coblenz and Cologne. We dined before going on board the steamer for Rotterdam. As the day was on the decline, we did not see much of the remainder of the Rhine. The whole of the passage was full of discomfort and annoyances. In the first place, in the chill hour of midnight, the passengers and all the cargo were set down, and left to themselves for two hours, at Düsseldorf, till the other steamer came up that was to carry us to our destination. When we went aboard, another two hours were consumed in stowing such an immense quantity of goods, that there was hardly a passage left to walk on the deck. Rain also began to pour, and the cold became still more intense. All these annoyances, in a vessel of ordinary accommodations, might have been got rid of by retiring to a comfortable berth; but no such could be found. All the passengers—and they were by this time considerably increased—were packed together, like so many cattle, in the after-part of the ship, in two small cabins twelve feet square, and placed one over each other, without couches or anything whatever to repose on. There were not even stools to be had. I for one lay, or rather writhed and contorted, during a sleepless night, on the hard boards, and felt sore, cold, and weary, and in that wretched condition in which the thoughts will not fix upon any one subject for any length of time, but fly off continually to something new. It was a glad sight to see the morning appear, and get released from such a cramped and disagreeable state of things. On coming to the Dutch frontier, the custom-house officers came on board, and stopped the vessel till they were satisfied with examining our passports and traps. The flat character of Holland was now manifest. The only thing we saw in the form of plants was the *Arundo Phragmites*, which, as the vessel moved along the narrow creeks and canals, most gracefully waved to and fro, like a corn-field in autumn when under the influence of a sweeping wind. We also saw among the reeds numerous giant specimens of *Lythrum Salicaria*. The trip was disagreeably protracted till six o'clock, which was the hour we knew that the Hull steamer was to sail; and, to make bad worse, it lay in a distant part of the quay. We thought of making a strong effort to reach it. My friend left the care of the luggage to me, and ran with all speed to

the place from which the Hull steamer was to depart. On arriving, all out of breath, he found the vessel already under weigh. He shouted to the captain that there were five passengers for Hull, and requested he would put round a few minutes and take them on board, which he kindly agreed to do. Some little difficulties had, however, to be previously gone through, as is commonly the case when one is in a hurry. A fee was to be paid for town-duties, and cabs to be got, and all the passengers to be taken to the quay. When I was about to step on board, the Dutch looked upon me with perfect wonderment, being quite unable to comprehend what my vast pile of dried plants might be. To ease their astonishment, I drew aside one or two sheets, and let them into the mysteries which the leaves revealed.

We all got happily on board, and now felt, for the first time since we left London Bridge, that we were among old friends again.

Having got safely on board the Hull steamer, as we have said, we mingled with a goodly number of English tourists who were returning from various parts of the continent. We talked over our individual expeditions and adventures, and this employment gave pleasant speed to the tardy-paced hours during our confinement in the vessel. As it soon began to threaten bad weather, the captain, who had a presentiment of its approach, deemed it advisable not to venture into the open sea till an early hour next morning. We therefore came to anchor within the mouth of the river, and there remained stationary till about three o'clock on Sunday morning, when we again stood out to sea. Shortly after this the wind blew so fresh and strong, and shook the vessel so much, that there was hardly one on board that did not feel sea-sick. In all parts of the ship invalids were seen in a very queer and helpless condition. The squeamishness became so great and universal that no symptoms of breakfast appeared at the usual hour, and no one cared for anything in the shape of food. This abstinence continued up to four o'clock in the afternoon, when sheer want and nature's monitions made it necessary to take a light dinner. When the hour of retiring arrived, very few took to their berths. It was considered better to occupy the couches in the cabin, and there to drowse away, under the light of the

lamp dimly burning, the sacred hours of the night. We entered the Humber about six o'clock on Monday morning; and when the pier was now at hand, the customhouse officers came on board to search our luggage. They behaved very civilly to us. Having nothing contraband about us, we had nothing to fear on that score. A few minutes afterwards we landed on the quay. Here we had to wait for about an hour till the railway-office opened to issue tickets. We were bound for Sheffield, that great manufacturing city, and emphatically called the steel emporium of the world. We got in about one o'clock, and dined in the house of a friend. I here parted from my companion in travel, and booked for Manchester in the first place, and afterwards by the Caledonian for Edinburgh, where I arrived about twenty minutes past twelve P.M., on Tuesday the 21st August,—thus making the tour to occupy in all three weeks and three days. The expense to each of us amounted to about L.25, and the results of the whole journey were in the highest degree satisfactory, and go to prove that such excursions are quite practicable at a moderate expense, and farther, that a good deal more remains to be done in the reading up and understanding of the living page of the Flora of the Continent.

LIST OF PLANTS COLLECTED.

CLASS I.—DICOTYLEDONS.

SUBCLASS—THALAMIFLORÆ.

RANUNCULACEÆ :

Aconitum Lycoetorum
 Napellus
 nigrum
 paniculatum
 tauricum
 Actæa spicata
 Anemone alpina
 hepatica
 vernalis
 Aquilegia alpina
 vulgaris
 Clematis erecta
 Delphinium Consolida
 Helleborus fœtidus
 Ranunculus aconitifolius
 acris
 alpestris
 glacialis
 montanus
 parnassifolius
 pyrenæus
 Villarsii
 Thalictrum aquilegifolium
 Trollius europæus

PAPAVERACEÆ :

Chelidonium majus

CRUEIFERÆ :

Alyssum ealycinum
 Arabis alpina
 hirsuta
 Turrita
 Biscutella lævigata
 Cardamine resedifolia
 Cochlearia saxatilis
 Dentaria digitata
 heptaphyllos
 Draba aizoides

Draba alpina
 Eruea sativa
 Hutchinsia alpina
 Lepidium rotundifolium
 Neslia paniculata
 Raphanistrum arvense
 Sisymbrium obtusangulum
 Thlaspi alpestre
 arvense
 Bursa-pastoris
 montanum
 rotundifolium

CISTACEÆ :

Helianthemum grandiflorum
 (var. alpinum)
 oelandicum
 vulgare (var. al-
 pinum)

VIOLACEÆ :

Viola calcarata
 biflora
 sudetica

DROSERACEÆ :

Parnassia palustris

POLYGALACEÆ :

Polygala amarella

CARYOPHYLLACEÆ :

Alsine laricifolia
 Arenaria ciliata
 biflora
 Cerastium alpinum
 arvense
 latifolium
 Cherleria sedoides
 Dianthus Armeria
 cæsius
 carthusianorum
 monspeliacus

Dianthus prolifer (var. *uniflora*)
 sylvaticus
Gypsophila repens
Lychnis sylvestris
Saponaria ocyroides
Silene acaulis
 inflata (var. *alpina*)
 nutans
 rupestris
Spergula saginoides
Stellaria cerastoides

Hypericum humifusum
 perforatum
 Richeri
 GERANIACEÆ:
 Geranium columbinum
 robertianum
 rotundifolium
 sylvaticum
 LINACEÆ:
 Linum catharticum

SUBCLASS II.—CALYCIFLORÆ.

RHAMNACEÆ:
 Rhamnus pumilus
 LEGUMINOSÆ:
 Anthyllis montana
 Vulneraria (var. *albescens*)
 Coronilla Emerus
 minima
 Genista pilosa
 prostrata
 segetalis
 unifusa
 Hippocrepis comosa
 Medicago minima
 Onobrychis sativa
 Ononis natrix
 Oxytropis campestris
 montana
 Trifolium alpestre
 alpinum
 badium
 medium
 saxatile
 Vicia sativa
 sepium
 ROSACEÆ:
 Alchemilla alpina
 dissecta
 hybrida
 minima
 vulgaris
 Cotoneaster vulgaris
 Cratægus latifolia
 Dryas octapetala
 Geum montanum
 rivale

Potentilla argentea
 aurea
 frigida
 grandiflora
 Poterium Sanguisorba
 Rosa alpina
 Rubus saxatilis
 Sanguisorba officinalis
 Sibbaldia procumbens
 Spiræa Aruncus
 LYTHRACEÆ:
 Lythrum Salicaria
 ONAGRACEÆ:
 Epilobium alpinum
 collinum
 Dodonæi
 hirsutum
 montanum
 roseum
 spicatum
 ILLECEBRACEÆ OR PARONYCHIACEÆ:
 Illecebrum verticillatum
 Scleranthus annuus
 perennis
 CRASSULACEÆ:
 Sedum album
 atratum
 reflexum
 Sempervivum arachnoideum
 montanum
 GROSSULARIACEÆ:
 Ribes alpinum
 SAXIFRAGACEÆ:
 Chrysosplenium alternifolium
 Saxifraga aizoides
 aizoon

<i>Saxifraga androsacea</i>	<i>Adenostyles albifrons</i>
<i>aspera</i>	<i>alpina</i>
<i>biflora</i>	<i>Antennaria dioica</i>
<i>bryoides</i>	<i>Arnica Bellidiastrum</i>
<i>cuneifolia</i>	<i>montana</i>
<i>hypnoides</i>	<i>Artemisia Absinthium</i>
<i>muscoides</i>	<i>campestris</i>
<i>oppositifolia</i>	<i>Aster alpinus</i>
<i>rotundifolia</i>	<i>Barkhausia fetida</i>
<i>stellaris</i>	<i>Bellidiastrum Michellii</i>
UMBELLIFERÆ :	<i>Carduus lanceolatus</i>
<i>Astrantia major</i>	<i>nutans</i>
<i>minor</i>	<i>Carlina chamæleon</i>
<i>Ægopodium Podagraria</i>	<i>Centaurea Jacea</i>
<i>Bupleurum stellatum</i>	<i>montana</i>
<i>Chærophyllum hirsutum</i>	<i>Scabiosa</i>
<i>Eryngium campestre</i>	<i>Chrysanthemum alpinum</i>
<i>Gaya pyrenaica</i>	<i>Cichorium Intybus</i>
<i>Heracleum montanum</i>	<i>Cirsium eriophorum</i>
<i>Imperatoria Ostruthium</i>	<i>tuberosum</i>
<i>Laserpitium latifolium</i>	<i>Crepis paludosa</i>
<i>Siler</i>	<i>Doronicum Pardalianches</i>
<i>Libanotis montana</i>	<i>scorpioides</i>
<i>Meum athamanticum</i>	<i>Erigeron acris</i>
<i>mutellina</i>	<i>alpinus</i>
<i>Pastinaca sativa</i>	<i>uniflorus</i>
<i>Peucedanum vulgare</i>	<i>Gnaphalium angustifolium</i>
<i>Pimpinella magna</i>	<i>dioicum</i>
<i>vulgaris</i>	<i>norvegicum</i>
<i>Selinum carvifolia</i>	<i>Hieracium auranticum</i>
CAPRIFOLIACÆ :	<i>aureum</i>
<i>Lonicera alpigena</i>	<i>auricula</i>
<i>Sambucus nigra</i>	<i>montanum</i>
<i>racemosa</i>	<i>murorum</i>
<i>Viburnum Opulus</i>	<i>villosum</i>
RUBIACÆ :	<i>viscidulum</i>
<i>Asperula cynanchica</i>	<i>Homogyne alpina</i>
<i>Galium boreale</i>	<i>Leontodon hispidum</i>
<i>erectum</i>	<i>pyrenaicus</i>
<i>hercynicum</i>	<i>Lcucanthemum grandiflorum</i>
<i>pusillum</i>	<i>Mulgedium alpinum</i>
<i>saxatile</i>	<i>Petasites albus</i>
<i>sylvaticum</i>	<i>niveus</i>
<i>sylvestre</i>	<i>Prenanthus muralis</i>
VALERIANACÆ :	<i>purpurea</i>
<i>Valeriana montana</i>	<i>Senecio Doronicum</i>
<i>tripteris</i>	<i>incanus</i>
COMPOSITÆ :	<i>Saracenicus</i>
<i>Achillea macrophylla</i>	<i>Solidago minuta</i>
<i>Millefolium</i>	<i>Virgaurea</i>
<i>moschata</i>	<i>Tussilago alpina</i>

Xeranthemum inapertum

CAMPANULACEÆ :

Campanula barbata
glomerata
patula
persicifolia
pusilla
Rapunulus
rhomboidalis
thyrsoides
Trachelium

Jasione montana

Phyteuma betonicifolium
hemisphaericum
orbiculare
spicatum

Specularia speculum

VACCINIACEÆ :

Vaccinium Myrtillus
uliginosum
Vitis-idaea

SUBCLASS III.—COROLLIFLORÆ.

ERICACEÆ :

Azalea procumbens
Calluna vulgaris
Erica carnea
Tetralix
Rhododendron ferrugineum
hirsutum

ASCLEPIADACEÆ :

Asclepias Vincetoxicum

PYROLACEÆ :

Monotropa Hypopitys
Pyrola minor
secunda

GENTIANACEÆ :

Gentiana acaulis
acaulis (var. excisa)
asclepiadica
bavarica
campestris
cruciata
germanica
glacialis
lutea
nivalis
punctatæ-purpurea
rubra
verna

CONVOLVULACEÆ :

Cuscuta epilinum

BORAGINACEÆ :

Echium vulgare
Myosotis alpestris
alpina
hispida
montana
palustris

SOLANACEÆ :

Solanum nigrum

SCROPHULARIACEÆ :

Bartsia alpina
Digitalis lutea
parviflora
Erinus alpinus
Euphrasia minima
vulgaris
Linaria alpina
minor
striata
Melampyrum nemorosum
pratense
Pedicularis ascendens
rostrata
verticillata
Rhinanthus alpinus
Scrophularia canina
Verbascum floccosum
nigrum
Thapsus
Veronica alpina
aphylla
bellidioides
Chamædrys
fruticulosa
saxatilis
scorpyllifolia
spicata
urticifolia

LABIATÆ :

Ajuga alpina
genevensis
Betonica hirsuta
Calamintha alpina
Galeopsis Ladanum
Tetrahit
Lamium incisum
Melissa calamintha

Nepeta Cataria	LOBULARIACEÆ :
Origanum vulgare	Globularia cordifolia
Prunella grandiflora	nudicaulis
vulgaris	LENTIBULARIACEÆ :
Salvia pratensis	Pinguicula alpina
viscosa	PRIMULACEÆ :
Stachys alpina	Androsace (Aretia) glacialis
annua	carnea
arvensis	lactea
recta	obtusifolia
Teucrium montanum	Lysimachia vulgaris
Chamædrys	Primula Auricula
Thymus Acinos	farinosa
arvensis	viscosa
VERBENACEÆ :	Soldanella alpina
Verbena floecus	PLANTAGINACEÆ :
officinalis	Plantago alpina
	serpentina

SUBCLASS IV.—MONOCHLAMYDEÆ.

CHENOPODIACEÆ :	Thesium montanum
Chenopodium Bonus-Henricus	EUPHORBIACEÆ :
POLYGONACEÆ :	Euphorbia Cyparissias
Polygonum viviparum	Gerardiana
Rumex alpinus	hiberna
ELEAGINACEÆ :	SALICACEÆ :
Daphne Mezereum	Salix herbacea
Hippophae rhamnoides	reticulata
SANTALACEÆ :	
Thesium alpinum	

CLASS II.—MONOCOTYLEDONES.

SUBCLASS I.—DICTYOGENÆ.

TRILLIACEÆ :
Paris quadrifolia.

SUBCLASS II.—PETALOIDEÆ, OR FLORIDA.

ORCHIDACEÆ :	Orehis globosa
Epipactis atro-rubens	maculata
Gymnadenia conopsea	nigra
Habenaria bifolia	viridis
viridis	Satyrion nigrum
Listera cordata	viride
Neottia ovata	Serapias rubra
Orehis chlorantha	Spiranthes æstivalis
conopsea	autumnalis

AMARYLLIDACEÆ :

Narcissus Pseudo-Narcissus

LILIACEÆ :

Allium album

Schœnoprasum

vineale

Victorialis

Anthericum ramosum

Convallaria polygonatum
verticillatum

Czaekia Liliastrum

Gagea lutea

Lilium Martagon

Maianthemum bifolium

Ornithogalum fistulosum

Phalangium ramosum

Polygonatum vulgare

MELANTHACEÆ :

Colchicum alpinum

Tofieldia alpina

Veratrum album

JUNCACEÆ :

Juncus alpinus

Luzula albida

conglomerata

glabrata

maxima

nivea

spadicea

spicata

sudetica

SUBCLASS III.—GLUMIFERÆ.

CYPERACEÆ :

Carex frigida

Goodenovii

vesicaria

Scirpus compressus

GRAMINEÆ :

Agrostis festucoides

pumila

rupestris

stolonifera

vulgaris

Aira cæspitosa

earyophyllea

flexuosa

Avena elatior

Brachypodium sylvaticum

Briza maxima

Bromus racemosus

tectorum

Cynosurus cristatus

Festuca Halleri

Glyceria alpina

Melica ciliata

uniflora

Nardus stricta

Phleum alpinum

bulbosum

Poa alpina

nemoralis

Sesleria cœrulea

ACOTYLEDONES.

FILICES :

Asplenium Halleri

Ruta-muraria

septentrionale

Trichomanes

viride

Botrychium Lunaria

Ceterach officinarum

Cystopteris dentata

fragilis

Polypodium Dryopteris

Polystichum Lonchitis

LYCOPODIACEÆ :

Lycopodium alpinum

clavatum

Lycopodium helveticum

selaginoides

Selago

MUSCI :

Bryum capillare

Encalypta ciliata

Polytrichum nanum

LICHENES :

Cetraria islandica

Cladonia stellata (var. bicolor)

Lecanora ventosa

Stereocaulon nanum

FUNGI :

Cantharellus cibarius

APPENDIX.

No. I.

FOR the identification of species, I have consulted the excellent work entitled "Flore du Dauphiné," by Mutel ; Koch's "Synopsis ;" Wood's "Tourist's Flora ;" Payot's lists of the Principal Flowering Plants, and of the Ferns, Equisetums, and Lycopods of the Environs of Mont Blanc ; Fischer's "Taschenbuch der Flora von Bern ;" the "Catalogue Raisonné des Plantes Vasculaires du Plateau Central de la France," par Henri Lecoq and Martial Lamotte. Paris. Price 4 francs. M. Lecoq's great work is entitled "Etudes sur la Géographie Botanique de l'Europe, et en particulier sur la Végétation du Plateau Central de la France," nine vols. 8vo. Paris, J. B. Baillière, 1854-58. Price about 80 francs.

The following plants were found upon the Montagne des Bressons between Geneva and Sallenche, by M. Chatin's party on the first day of their herborization. We joined on the second day of their labours in the field. They were as follows :—

Carex firma
Saxifraga mutata
Ranunculus Thora
Tozzia alpina
Saussurca depressa

Phaca astragaloides
Veronica saxatilis
Erigeron glabratus
Hutchinsia rotundifolia
Papaver alpinum

It should be mentioned here, that with this last exception of plant lists, the others that we have previously given in this paper are almost entirely the result of our own individual exertions. M. Chatin's lists of the results of the excursion are doubtless much more extensive than ours.

M. Rüttimeyer observed that the Stockholm and Weissenstein are the great resorts of Bernese botanists, and that there, among others, are found the rare *Petrocallis pyrenaica*, *Astragalus uralensis*, and *Lychnis alpina*.

No. II.

Abstract of a Paper read before the Literary and Philosophical Society at Sheffield, as printed in the Reports of the said Society, June 3, 1859, and by the kind consent of the Author allowed to be inserted here.

MR JOSEPH KIRK "*On the Volcanic Regions of Auvergne.*"

The following description of a small part of the volcanic regions in the centre of France is taken from notes which I made during a short stay at Clermont Ferrand, in the month of April last, to which place I went for the purpose of examining that district of extinct volcanoes. I had for some years taken an interest in this country, and more particularly so, since I had read the late edition of the work of G. Poulett Scrope, Esq., M.P., on the Volcanoes of Central France. To this, and to the large maps published by the French Government, which I had with me, I am indebted for the facility with which I visited so many places in the short time at my disposal.

The volcanic district of Auvergne, &c., is comprised within an equilateral triangle, whose sides are each nearly 100 miles in length. One of the angles is at Montélimart, on the Rhone; another at Gannat, north of Clermont; and the third at Egeac. It forms an extensive plateau of granite, elevated considerably above the surrounding country, and appears to have been an island raised out of the sea, in which were deposited the oolitic, cretaceous, and tertiary strata, which are now the geological formations of the surrounding country.

The volcanic forces appear to have been principally exerted in the three angles. The Mézen is in the south-east, the Cantal in the south-west, and Mont Dor and Mont Dôme in the north-west; the latter is the district to which I direct your attention, as it is the nearest point from Paris, and the only one which I had an opportunity of seeing.

The city of Clermont is about 250 miles south of Paris, from which there is now a railway. It is situated in the fertile plain of the Limagne, which extends as a great depression in the granite plateau from north to south about 40 miles, and from east to west 15 miles, and appears to have been an immense lake, bounded east and west respectively by the mountains of the Foréz and those of Monts Dor and Dôme, and opening on the north along the present course of the Allier and the Loire, into the ancient surrounding sea.

The sedimentary deposits in the valley must have been several hundred feet in thickness, and consisted of freshwater limestone, volcanic ashes, pebbles, and currents of layers of basalt, the product of ancient volcanoes, and the height of the plain would then have been from 1200 to 2700 feet above the level of the sea, such being the present heights of the several detached basaltic capped hills, which are so numerous, and which form such remarkable objects in the scenery of the Limagne.

The principal hills which stand out in isolated masses are those of Les

Côtes de Clermont, Cornon, the city of Clermont, Guyon, Montrognon, and Gergovia ; and an observer viewing them, as I did, from the granite ridges above Royat and Gravenoire, must be convinced that they were the remains of a once continuous thick deposit, the great mass of which has in lapse of ages been eroded and removed.

On the west side of this valley, rises abruptly a plateau of granite hills ; its average height is about 2400 feet, but the numerous peaks are considerably higher ; its length is about twenty, and its width about eight miles. The Domitic Puy and volcanic craters are chiefly in a line running nearly north and south ; the whole surrounding country is covered with scorïæ and volcanic ashes. Torrents of basaltic lava, generally in long, narrow currents, have rushed down the steep valleys to the east ; but on the west, where the declivity is more gradual, the basalt spread out in broader masses until it became exhausted or hardened in the valley of the Sicule.

I must acknowledge that my feelings, on the first sight of Mont Dôme and the surrounding Puy, were those of disappointment. They did not appear to me much larger than those hills of igneous origin with which I was so well acquainted in the Silurian district of Shropshire, and which they appeared very much to resemble. When, however, I left Clermont, and had traced upwards the lava stream to its source on the Puy de Pariou, I changed my opinion. I found that the heights, which at first appeared almost overhanging Clermont, were at a distance of from five to six miles, and that before I had proceeded two miles, I had attained the height of 900 feet above the railway station, at Clermont, 1200 feet above the river Allier, and 2220 feet above the level of the sea.

The first place which I proposed to visit was the Puy de Pariou, perhaps the most recent, as well as the most perfect volcanic crater in the district, and from which a large stream of lava proceeded and rushed down the valley towards the city of Clermont. My guide conducted me by way of Fontmore, where he pointed out to me the place where the lava current appears to have been stopped, and where it accumulated in a large mass, which is now quarried for building-stone and for other purposes ; it is of a gray colour, and is both cellular and compact. The cathedral and most of the public edifices are built with this kind of stone, but that of the best quality is obtained at Volvic, further to the north of Clermont. I passed up the valley of Prudelles, following upwards the lava current. Here I left the road, to examine the section of a hill formed of distinct layers of fine and coarse volcanic ashes. I then returned to the lava current, passed Orgines and the Domitic Puy de Sarcoui, and turned to the south, to ascend to the lower but more ancient crater of the Parion. It was from this, at the height of more than 3000 feet, that the lava current which I had traced appeared to have issued. This crater was originally much larger than it appears at present ; the east and south sides are entirely destroyed by a later eruption, which produced the still higher and almost perfect cone and crater, forming the present summit of the Puy de Pariou. I found the difficulty of ascent to this part much increased by the loose nature of the soil, which was little else than ashes and scorïæ, slightly held together by a scanty herbage and a few shrubs. When I reached the summit, a height of 3930 feet, I was

amply repaid for the toil of the ascent. The crater is nearly circular, and about 1000 feet in diameter. The slope of the exterior and interior sides, which I measured, varied from 30 to 35 degrees ; the depth about 300 feet. The interior of the crater is entirely covered with grass, and spiral roads, formed by the sheep, lead down to the bottom. The ridge formed between the outer and inner slopes is, in many places, not more than three feet wide.

This is one of the highest parts of this portion of the range, and commands a most extensive view of from thirty to forty volcanic hills, but is itself overlooked by the Puy de Dôme, which is not more than two miles distant, and whose height is above 4840 feet. Within the crater, sheltered from the wind, we sat down, and enjoyed the refreshments which we had provided.

I then directed my attention to the several objects around. Immediately under me to the west was the Domitic Puy de Cliersou, and still further to the west, but within two miles, stood out by itself another perfect cone and crater, the Puy de Côme. I could distinctly see into the crater, which is interesting on account of the great quantity of lava with which it has covered the country to the west. On the north, a great number of large volcanic hills were seen within the distance of ten miles. On the south, stood the Petit Suchet, a Domitic hill, close to the Grand Suchet, and on the south of these two was the Petit de Dôme, close to which, but further south, the Puy de Dôme, a mountain of Domite, prevented by its immense size any further view in that direction. About ten miles distant to the south-east and south-west, the horizon was occupied by a more lofty range of mountains entirely covered with snow, the highest point of which is Mont Dore, which is 6250 feet in elevation.

The summit of Mont Dôme was covered with snow, which prevented my ascent to the top, and I was obliged to be satisfied with an examination of its base. I then returned by way of Royat, where I particularly noticed the manner in which the mountain stream had undermined and carried away much of the lava which had accumulated here, and this work of erosion is still going forward. Near to this place I examined a large mass of decomposed granite mixed with bitumen ; the specimen which I brought away was moist and slightly elastic when I first got it, but it soon became hardened.

There is a very marked difference in the appearance of Domitic Puys and the volcanic cones ; the former have a round-topped and swelling outline, and appear to be formed of an unbroken mass of rather soft gray rock called Domite ; the latter, when perfect, have a conical summit raised out of a much wider base, and are composed of loose scoriæ and ashes, sloping evenly from the top downwards at an angle of from 30 to 35 degrees.

No streams of lava appear to have issued from the Domitic hills, but currents of basaltic lava may generally be traced from some part of the hills which have volcanic cones.

The second day, I proposed to examine the older currents of basalt which are seen in the detached hills in the Limagne. I proceeded by way of Beaunont and Ccyrat to Montrognon, which I ascended on the west side.

This hill, the upper part of which is a compact basalt, rises directly out of the plain to the height of 1860 feet. On the summit, which is covered by the ruins of an old castle, the view is very extensive. Here I took a sketch and section, showing the geological structure of the country.

On the north-west, for a distance of about eight miles, there is a fine view of the escarpment of the granitic plateau with the numerous ravines opening from the west into the Limagne. Down one of these, at the distance of little more than a mile, is seen the lava current from Graveneire past Beaumont to Aubières. Beyond this, but within four miles, is seen the city of Clermont, occupying the entire hill, which rises abruptly on three sides out of the valley. To the east of Clermont, the wide valley watered by the Allier extends for miles, interspersed with many detached basaltic-capped hills, till the horizon is closed by the granite range forming the eastern boundary of Auvergne.

On the east, within a distance of two miles, stands the hill of Gergovia, which, besides a geological, has an historical interest. This is supposed to have been the capital city of the Averni, which Julius Cæsar besieged, but which offered such a formidable resistance to the Roman legions, that, after many fruitless assaults, he was obliged to abandon the siege.

The last place which I examined, was the hill of Graveneire, which is remarkable for the various-coloured matter of its composition. Hard dark basalt, and brown and red scoriæ, are there seen in distinct masses or layers: the red is used instead of gravel for garden walks, and the several varieties are used to mix up with mortar for building purposes.

The whole country around Clermont, particularly the sides of the hills, forms an extensive series of vineyards. The pretty village of Beaumont is celebrated for its productive vineyards and excellent wine. In one of the suburbs of the city is the mineral spring of St Alyre, where there is also a natural bridge of tufa across the stream of the Tiretane. The proprietor of the baths is now forming a second bridge, by conducting the mineral water over the stream in a trough which is already quite covered with tufa, and will soon be completed; thus showing the manner in which the natural bridge may have been formed.

The Cathedral is not very large, but is very lofty and elegant in construction, and the interior is richly carved and decorated.

The population of Clermont is about 40,000; the old streets are generally narrow and crooked, but the new ones are wider and better built. There are several old churches well worth the attention of the antiquary.

There are two infantry barracks and one for cavalry. I spent three very pleasant days at Clermont, and left with regret that my engagements prevented me remaining longer.